



Washington State  
**Department of Transportation**

## Washington State Long-Term Air Transportation Study



**DRAFT**

### Phase III Alternatives Report *Capacity and System Performance*

November 26, 2008

DRAFT

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The following statement is provided as required by Paragraph 429.a of Federal Aviation Administration (FAA) Order 5100.38, Airport Improvement Program (AIP) Handbook:

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# **OBJECTIVES OF ALTERNATIVES ANALYSIS**

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## **Background**

The Washington State Department of Transportation (WSDOT) Long-term Air Transportation Study (LATS) was authorized by the State Legislature through transportation bill ESSB 5121. The transportation bill requires WSDOT Aviation to conduct a study that identifies the State's long-term air transportation needs by documenting the extent and capacity of the existing aviation system, determining the future needs of the system and developing a strategy for meeting those needs.

During LATS Phase I, data was collected and analyzed for all public use airports, both held by the public or privately owned airports within the State. The airport system's current capacity was assessed, in terms of both the amount and type of aviation activity that could be accommodated. A system of classifying airports was proposed along with performance objectives appropriate for the various classifications. Airports were classified in order to identify an individual airport's role and contribution to the local, regional, statewide and national air transportation system. Performance objectives were proposed to address a variety of facilities and services based on how individual airports function within the statewide system.

During LATS Phase II, the airport data was translated into measures of capacity for key components of the aviation system including aircraft operations, passenger demand, air cargo, airspace, aircraft parking and storage and undeveloped airport land. The capacity calculations for each airport were subsequently compared to demand forecasts also prepared during Phase II to identify both individual airport as well as overall system needs. The airport classifications and performance objectives were revised during Phase II, and statewide, regional, and individual airport performance was measured by compliance with performance objectives.

The LATS Phase III analysis builds upon the findings and conclusions of the Phase II study by exploring alternatives for addressing existing and anticipated shortfalls in system capacity and airport facility needs. Under Phase III, alternatives for addressing shortfalls in the amount and type of aviation capacity for Washington airports are evaluated and ultimately integrated into an overall state-wide strategy for addressing the State's long-term air transportation needs.

## Implementation Framework

The overall findings, conclusions and recommendations resulting from the study will be developed in consultation with the Governor's Aviation Planning Council. Under the LATS process, the Council has developed guiding principles and aviation system policies consistent with the State's Transportation Goals. The final LATS recommendations on how to best meet statewide commercial and general aviation capacity needs will be presented to the Governor, the Legislature, the State Transportation Commission, Regional Transportation Planning Organizations, as well as the Federal Aviation Administration (FAA), airport interests and the public. In addition, the final recommendations will also need to be consistent with the State's Transportation System Policy Goals set forth in RCW 47.04.280. The Aviation Planning Council policy review and Transportation System Policy Goals are summarized below.

Concurrent with the LATS process, the Aviation Planning Council is developing policies relative to aviation and identifying system plan recommended actions. As of this writing (November, 2008), the Council's review is still underway. The policy recommendations address seven key aspects of the Washington aviation system as summarized below.

- **Capacity:** Policy guidance is provided regarding the State's role in ensuring the capability of the aviation system to meet future operations demand. If demand is anticipated to exceed system capacity, recommendations are made as to additional actions that may be needed to maintain and/or expand the system.
- **Land Use:** These policies address the need to protect airports from encroachment by development of incompatible uses in the airport vicinity. The policies address regulation of incompatible land uses as well as airspace intrusions at both the State and local levels.
- **Environment:** The Environmental policies address a range of issues, from mitigating adverse impacts to wildlife protection, energy conservation, alternative fuels and waste reduction.
- **Safety:** Preservation of aviation system safety is addressed through policy recommendations on the application of design criteria and safety standards, instrumentation and weather

reporting, as well as identification of airports critical to the Washington Comprehensive Emergency Management Plan.

- **Stewardship:** Proposed Aviation Planning Council policies on stewardship cover a wide range of topics including but not limited to maintenance of the State's system plan to capital investment and funding, technical assistance to airports and the potential for public/private partnerships.
- **Economy:** Policies relevant to the economy address not only the role of airports in supporting the economic growth of the State, but also the need of the State to support airports through investment in aviation infrastructure and education.
- **Mobility:** The Mobility policies stress the importance of the aviation system as an integral part of Washington's overall transportation infrastructure. Washington airports link the State to the national air transportation system. As such, federal, state, regional and local transportation agencies need to be involved in the planning and development of an integrated transportation system.

A more complete listing of Council policy recommendations is presented in Appendix A.

The Washington transportation system policy goals are set forth in the Revised Code of Washington (RCW) Section 47.04.280. The policy goals, as set forth and adopted by the Washington Legislature, state the following:

- (1) It is the intent of the legislature to establish policy goals for the planning, operation, performance of, and investment in the state's transportation system. The policy goals established under this section are deemed consistent with the benchmark categories adopted by the State's blue ribbon commission on transportation on November 30, 2000. Public investments in transportation should support achievement of these policy goals:

- (a) Preservation: To maintain, preserve, and extend the life and utility of prior investments in transportation systems and services;

(b) Safety: To provide for and improve the safety and security of transportation customers and the transportation system;

(c) Mobility: To improve the predictable movement of goods and people throughout Washington state

(d) Environment: To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment; and

(e) Stewardship: To continuously improve the quality, effectiveness, and efficiency of the transportation system.

(2) The powers, duties, and functions of state transportation agencies must be performed in a manner consistent with the policy goals set forth in subsection (1) of this section.

(3) These policy goals are intended to be the basis for establishing detailed and measurable objectives and related performance measures.

(4) It is the intent of the legislature that the office of financial management establish objectives and performance measures for the department of transportation and other state agencies with transportation-related responsibilities to ensure transportation system performance at local, regional, and state government levels progresses toward the attainment of the policy goals set forth in subsection (1) of this section. The office of financial management shall submit initial objectives and performance measures to the legislature for its review and shall provide copies of the same to the commission during the 2008 legislative session. The office of financial management shall submit objectives and performance measures to the legislature for its review and shall provide copies of the same to the commission during each regular session of the legislature during an even-numbered year thereafter.

(5) This section does not create a private right of action.

Ultimately, implementation of LATS strategies and recommendations will depend on a multi-layered matrix of federal, state, regional and local

agencies and organizations working in concert with airport sponsors and the private sector. Each stakeholder will have their own role, responsibilities and interests to be addressed. Those most central to this process, along with their primary areas of responsibility, are identified below in Figure 1. A more complete discussion of stakeholder roles and responsibilities is presented in Appendix B of this report.

**Figure 1: Who is Responsible for Washington's Aviation System?**

<p><b>Federal Aviation Administration (FAA)</b></p> <p>The FAA represents the Federal government's role in the regulating, managing, planning, maintaining and funding, the national air transportation system. It supports airports listed in the National Plan of Integrated Airport Systems (NPIAS) and conduct research necessary to develop tools and methods that advance the safety and efficiency of the national air transportation system</p>	<p><b>WSDOT/Aviation Division</b></p> <p>The WSDOT Aviation Division is the State's counterpart to the FAA. It owns one airport and is responsible for constructing and maintaining facilities for 17 state-operated airports. It also provides technical assistance to airports, cities, and counties; conducts search and rescue operations, conducts reviews and special studies, administers the Grant Assistance Program and is responsible for the Washington Aviation System Plan.</p>	<p><b>Regional Agencies</b></p> <p>The regional planning agencies (RTPOs, RPCs, RTCs and COGs) fulfill a variety of roles relative to the Washington State aviation system including regional and transportation planning, inter-governmental coordination, compatibility planning, economic development and environmental review</p>
<p><b>Local Jurisdictions</b></p> <p>In some cases, the local jurisdiction may also be the owner/operator of the airport. Local jurisdictions are also responsible for Comprehensive Planning including application of statewide goals, zoning and compatibility planning, transportation planning, utilities and infrastructure, public safety, economic development, taxation, licensing and coordination with Special Districts.</p>	<p><b>Air Carriers</b></p> <p>The role of the private sector within the state aviation system includes transport of passengers and/or cargo, aviation-related services to commercial and general aviation, and investment in airport facilities</p>	<p><b>Airport Sponsors</b></p> <p>Airport sponsors are generally responsible for managing and maintaining airports. In that role they are responsible for compliance with FAA requirements and grant assurances, compliance with local, regional, state and federal planning and environmental requirements, and for seeking funding for their airports.</p>
<p><b>General Public</b></p> <p>Local airports and the larger aviation system are dependent on the public, as customers, taxpayers, voters and users of the system. Their acceptance and approval of the airport role in community is critical to the long-term viability of the facility. Without community support, the aviation system faces many difficult challenges.</p>		

# SUMMARY OF CAPACITY ISSUES FACING STATE

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## Capacity Indicators Evaluated

The Phase I and Phase II analyses assessed the capability of each airport in both the Federal and State systems to accommodate existing and future levels of demand based on five factors. These factors are identified in Figure 2 below.

**Figure 2: Capacity Assessment Airport Components**

Component	Description
Annual Aircraft Operations	The capacity of an airport's runway system to accommodate the number of operations (take-offs or landings) that occur annually at an airport without experiencing delays.
Airline Passengers	The ability of an airport to accommodate airline passengers. This depends on the terminal facilities available including roadways, parking and passenger terminal building.
Air Cargo	Air Cargo capacity at airports is commonly measured as the annual enplaned tonnage that can reasonably be processed through existing facilities.
Airspace	The management of aircraft traffic in flight is a critical component of the State's aviation system. Although the Airspace structure overlying Washington airports was reviewed during the analyses in search of potential conflicts between airports, no recent studies or data is available from which to calculate a specific system capacity.
Aircraft Storage	Aircraft storage capacity is measured by the number of hangars and tiedown spaces currently available, plus calculation of the number of additional storage spaces that could be created on available airport land. In addition to locations to accommodate based aircraft, aircraft storage positions also include the need for transient aircraft positions. When aircraft move from one airport to another in the course of completing business in the various communities, maintaining a location where they are able to park for several hours or multiple days is essential for support to aviation users and future airport development.
Undeveloped Land	Undeveloped land with access to runways and taxiways is important to the future growth of an airport. This developable land allows airports to expand in support of growth in operations and offers aviation business room for growth and expansion.

Source: WSDOT LATS Phase I Report, Fig. 2, p. 22

The availability of Undeveloped Land was considered in estimating each airport's Aircraft Storage capacity. As a result, future Aircraft Storage capabilities assigned to each airport account for additional storage attributable to development of undeveloped land resources. Consequently, Undeveloped Land in and of itself was not used as a distinguishing capacity characteristic between airports.

## **Capacity Constrained Airports**

### **Aircraft Operations**

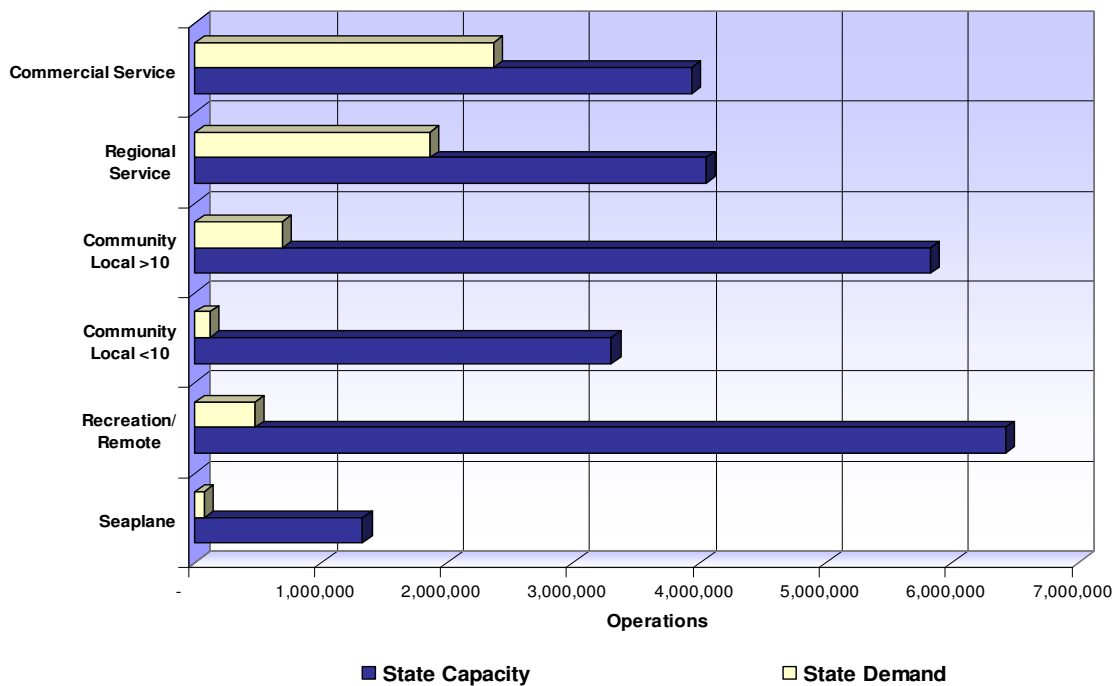
The WSDOT LATS Phase II Technical Report (June, 2007) presented the findings and conclusions of the capacity analyses for the indicators cited above. Two capacity thresholds for aircraft operations are of particular importance in long-range planning for the Washington aviation system. As noted in LATS Phase II, when the utilization rate of a facility reaches 60 percent of its operations capacity, it signals the point at which planning should commence to increase that capacity. Additionally, when a facility reaches 100 percent of its operations capacity, significant delays, congestion and increased operating costs are likely to occur. Consequently, this analysis specifically addresses the 60 and 100 percent operations capacity thresholds.

In the aircraft operations forecasts for 2030, operations demand across the state as a whole is well within the capacity of the overall State aviation system. In Figure 3 on the following page, 2030 statewide operations demand is presented in comparison to total system capacity by airport service classification. As shown in the figure, on a statewide basis, operations capacity exceeds the anticipated demand for all airport classifications.

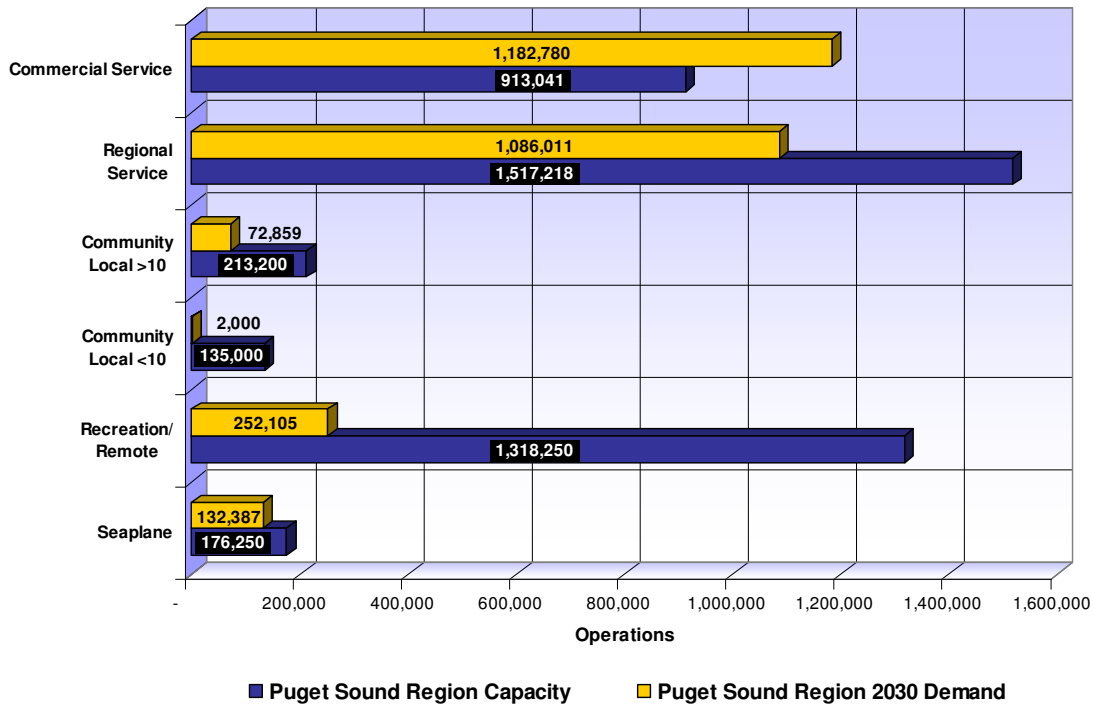
However, operations demand is not uniformly distributed among State airports. Operations activity tends to correspond to concentrations of population. Consequently, airports in and around major population centers may be expected to experience greater demand. While the Commercial Service airports within the Puget Sound Special Emphasis Area provide 23 percent of the overall State operations capacity, by 2030 they need to

accommodate 50 percent of the total statewide Commercial Service airport operations demand. In fact, the Puget Sound Special Emphasis Area is the only Washington area found to have airports forecast to exceed 100 percent of their respective operations capacities by or before 2030. Figure 4 on the following page presents a comparison of 2030 operations demand versus capacity by airport classification for the Puget Sound region. As is evident from the figure, aircraft operations at Commercial Service Airports will exceed operations capacity in 2030.

**Figure 3: 2030 Statewide Demand v. Capacity by Airport Classification**



**Figure 4: 2030 Operations Demand v. Capacity by Airport Classification  
Puget Sound Special Emphasis Area**



Within the Puget Sound region, projected 2030 demand is expected to exceed available capacity at two Commercial Service Airports, Seattle-Tacoma International and Boeing Field/King County International Airport, as well as at two additional facilities, Harvey Field (a Regional Service airport) and Kenmore Air Harbor Inc. (Seaplane Base). The forecasts for these Puget Sound Special Emphasis Area airports projected to exceed their total operating capacity are summarized in Figure 5 below. As already noted, these four airports are the only facilities in the statewide aviation system expected to exceed their operating capacities through the end of the planning period. The location of these airports is shown in Figure 6 on the following page.

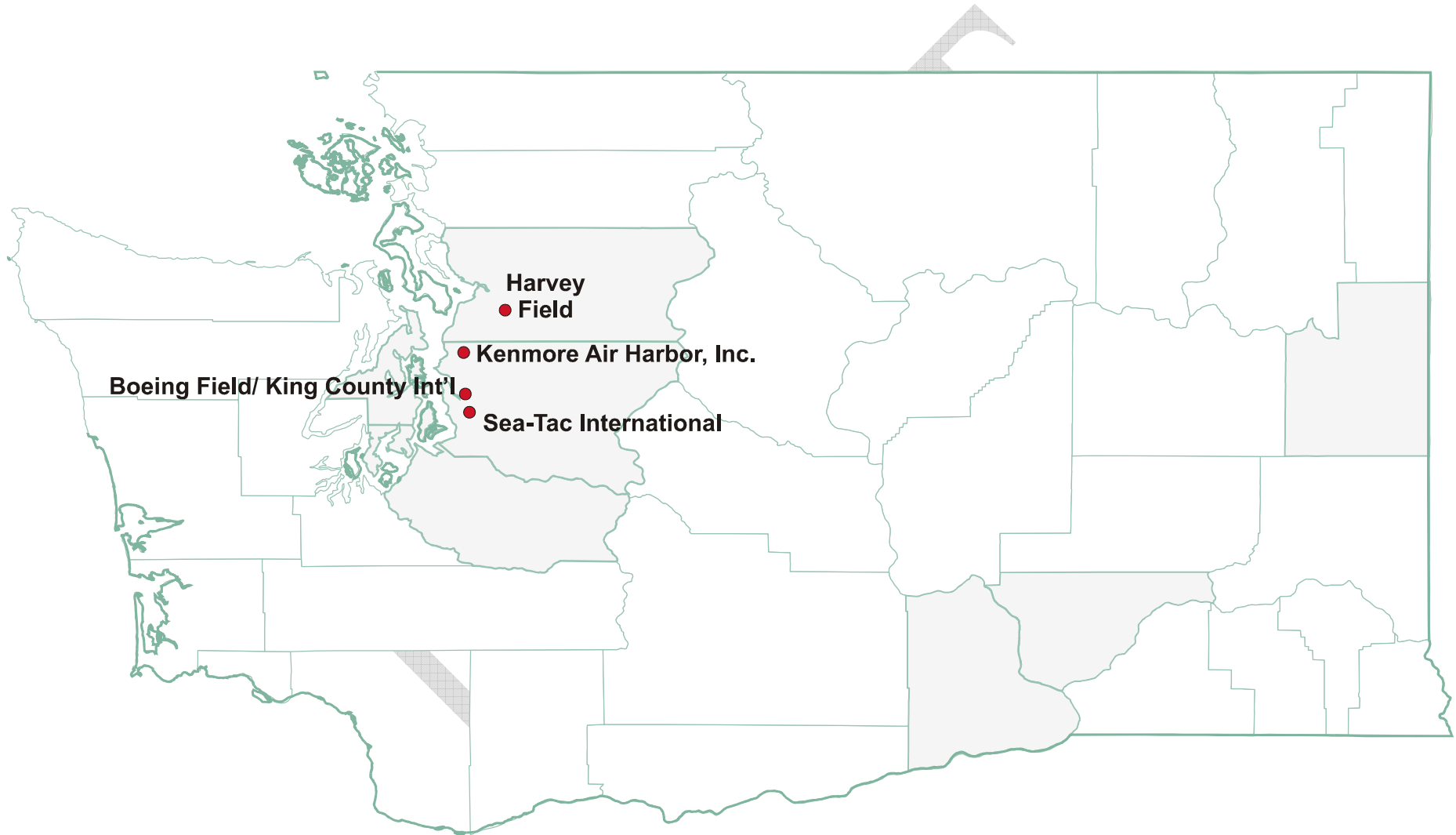
As noted in Figure 5 below, the over-capacity condition of Puget Sound Region airports is first evident in the demand forecasts as early as 2020. While the Regional Service airports in the Puget Sound Special Emphasis Area are expected to have sufficient reserve capacity available to absorb

the excess operations at the Commercial Service airports, doing so will leave little remaining capacity beyond 2030 for those aircraft operations dependent on a higher level of facilities and services.

**Figure 5: Airports Exceeding 100 Percent of Operations Capacity by 2030 Puget Sound Special Emphasis Area**

	ASV	2005	2010	2015	2020	2025	2030
<b>Commercial Service Airports</b>							
Boeing Field/King County Int'l	380,000	251,856	305,209	368,356	423,083	482,822	549,181
Percent Capacity		66%	80%	97%	111%	127%	145%
Operations Over 100% Capacity					43,083	102,822	169,181
Seattle-Tacoma International	533,041	346,744	391,960	443,068	499,673	563,563	633,599
Percent Capacity		65%	74%	83%	94%	106%	119%
Operations Over 100% Capacity						30,522	100,558
<b>Regional Service</b>							
Harvey Field	230,000	139,160	156,790	173,950	193,091	214,556	237,636
Percent Capacity		61%	68%	76%	84%	93%	103%
Operations Over 100% Capacity							7,636
<b>Commercial Service/Seaplane Base</b>							
Kenmore Air Harbor, Inc.	56,250	57,000	65,950	71,250	75,150	78,950	83,300
Percent Capacity		101%	117%	127%	134%	140%	148%
Operations Over 100% Capacity		750	9,700	15,000	18,900	22,700	27,050

**Figure 6: Airports Exceeding 100 Percent of Operations Capacity by 2030**



In addition to those airports exceeding operations capacity by the end of the forecast period, five additional airports within the Puget Sound Region Special Emphasis Area are forecast to reach or exceed the 60 percent operations capacity threshold by 2030. This is important to the current planning effort in considering overall Airport System capacity and the potential to redistribute excess operations within the region. The airports within the Puget Sound Special Emphasis Area found to be at 60 percent operations capacity by 2030 include:

- Arlington Municipal
- Auburn Municipal
- Snohomish County/Paine Field
- Crest Airpark
- Kenmore Air Seaplane Base

Figure 7 presents the 2030 demand forecasts for these airports along with their respective Airport Classifications and reserve operations capacities by forecast year.

**Figure 7: Airports at 60 Percent Capacity by 2030  
Puget Sound Special Emphasis Area**

	ASV	2005	2010	2015	2020	2025	2030
<b>Regional Service</b>							
Arlington Municipal	270,000	148,540	164,855	183,178	197,261	211,853	227,208
Percent Capacity		55%	61%	68%	73%	78%	84%
Reserve Operations Capacity		121,460	105,145	86,822	72,739	58,147	42,792
Auburn Municipal	231,000	143,450	150,063	155,872	160,888	165,126	169,949
Percent Capacity		62%	65%	67%	70%	71%	74%
Reserve Operations Capacity		87,550	80,937	75,128	70,112	65,874	61,051
Snohomish Co./Paine Field	316,218	150,368	160,528	172,020	181,028	189,854	199,783
Percent Capacity		48%	51%	54%	57%	60%	63%
Reserve Operations Capacity		165,850	155,690	144,198	135,190	126,364	116,435
<b>Recreation/Remote</b>							
Crest Airpark	240,000	146,250	151,200	155,250	157,950	160,200	162,450
Percent Capacity		61%	63%	65%	66%	67%	68%
Reserve Operations Capacity		93,750	88,800	84,750	82,050	79,800	77,550
<b>Seaplane Base</b>							
Kenmore Air Harbor SPB	60,000	31,200	39,300	42,500	43,900	45,300	46,700
Percent Capacity		52%	66%	71%	73%	76%	78%
Reserve Operations Capacity		28,800	20,700	17,500	16,100	14,700	13,300

In addition to those Puget Sound airports exceeding 60 percent capacity by 2030, three additional Washington facilities are forecast to exceed 60 percent capacity by 2030, although none will exceed the 100 percent threshold. The additional airports are presented in Figure 8 and all eight Washington airports expected to exceed 60 percent operations capacity by 2030 are shown by location in Figure 9 on the following page.

**Figure 8: Other Washington Airports  
Approaching Capacity Planning Threshold**

	ASV	2005	2010	2015	2020	2025	2030
<b>Commercial Service</b>							
Friday Harbor	138,000	65,457	70,941	76,931	83,462	90,643	98,450
Percent Capacity		47%	51%	56%	60%	66%	71%
Reserve Operations		72,543	67,059	61,069	54,538	47,357	39,550
Spokane Int'l	215,000	91,354	101,837	115,397	128,004	139,691	151,298
Percent Capacity		42%	47%	54%	60%	65%	70%
Reserve Operations Capacity		123,646	113,163	99,603	86,996	75,309	63,702
<b>Regional Service</b>							
Olympia	230,000	89,527	107,683	127,917	141,493	155,610	170,785
Percent Capacity		39%	47%	56%	62%	68%	74%
Reserve Operations		140,473	122,317	102,083	88,507	74,390	59,215

**Figure 9: Airports Exceeding 60 Percent of Operations Capacity by 2030**



Key findings and conclusions relative to future aircraft operations and Washington airport system capacity are as follows:

- At the statewide level, overall operations capacity through 2030 is adequate to meet forecast demand.
- Due to the concentration of demand in the Puget Sound Special Emphasis Area, four airports within the region are expected to exceed their total (100 percent) operations capacity by or before 2030.
- In addition, eight airports across the state are forecast to exceed 60 percent of their operations capacity by 2030 – five of the eight are located within the Puget Sound Special Emphasis Area.
- There are no additional Commercial Service airports within the Puget Sound Special Emphasis Area available to absorb the excess operations anticipated at Seattle-Tacoma International and Boeing Field/King County International Airports.
- Excess Commercial Service airport operations within the Puget Sound Special Emphasis Area must be redistributed to airports with or capable of providing similar levels of facilities and services.
- If Regional Service airports within the Puget Sound Special Emphasis Area must absorb excess Commercial Service airport operations, the combined capacity of Regional Service airports will reach 90 percent by 2030.
- Unequal redistribution of excess Commercial Service airport operations within the Puget Sound Special Emphasis Area may cause additional Regional Service airports to exceed 100 percent capacity.
- Regional Service Airports within the Puget Sound Special Emphasis Area may need to redistribute operations activity to lower classification or outlying airports in order to accommodate or absorb excess Commercial Service airport operations.
- Lower classification airports within the Puget Sound Special Emphasis Area may need to upgrade to accommodate displaced Regional Service airport operations.

## Passengers

### Commercial Airline Services at Small Washington State Airports

Many of the smaller commercial airports in Washington have lost a substantial amount of scheduled passenger airline service over the past 10-15 years, and six Washington airports have lost all scheduled airline services over this period. Factors contributing to the loss of service at smaller Washington airports include proximity to larger surrounding airports that draw passengers from the natural market areas of the smaller airports, reliance on a single carrier for all or most scheduled services, increases in aircraft size within the fleets of regional airlines that can lead to reductions in flight frequency at smaller airports, and high fuel prices and increasing fare competition at hub airports that have stressed the operating economics of regional carrier feed services from smaller airports.

The trends observed at Washington State's smaller airports are consistent with developments on a national basis. Small communities across the U.S. have lost scheduled airline services as airlines have eliminated the smallest air service markets from their route networks and consolidated services at larger commercial service airports.

In Phase II of LATS, several of Washington State's smaller commercial service airports, including Pullman/Moscow, Walla Walla, and Wenatchee were identified as having some risk of losing scheduled passenger airline services due to the factors identified above. The Essential Air Service Program (EAS) of the U.S. Department of Transportation could act to prevent a total loss of scheduled airline services at those airports of greatest risk. However, even with EAS protection, communities are only guaranteed a minimum level of two daily roundtrips to a designated hub airport, and participating communities have often experienced continuing declines in passenger traffic.

## **Alternatives Related to Small Community Air Service**

The alternatives pertaining to small community service range from No Action, which essentially would allow market decisions of the airlines to determine the future status of passenger airline service at small Washington airports, to the development of an aggressive program implemented by the State and local jurisdictions, potentially with Federal support through the Small Community Air Service Development grants, with the intent of preserving small community air service. Elements of State/local programs aimed at sustaining small community air services typically include both financial and marketing support to the participating airline(s), and may include outright subsidies or revenue guarantees as well as waivers of airport fees that reduce the operating costs incurred by carriers.

In considering the advantages and disadvantages of different approaches to dealing with the loss of air service at small communities, it will be necessary to weigh the near- and long-term costs associated with aggressive intervention to preserve services against the economic impacts associated with the loss of service at a specific community. An important decision factor could be whether the provision of short-term financial support will be sufficient to launch a pattern of air service that will ultimately become economically self-sufficient.

In addition, it might be appropriate to consider the availability of more robust service patterns at larger surrounding airports, that already attract a large percentage of air passengers from the impacted small communities. For example, Pullman/Moscow is located within 80 road miles and less than 2 hours drive time from Spokane International, and Walla Walla is located approximately 50 miles and one hour driving time from Tri-Cities/Pasco. Previous studies have found that significant numbers of passengers from these communities choose to drive to the larger surrounding airports to begin their air trips rather than utilize the lower levels of air service provided at their local airports.

## Key Passenger Findings

During the Phase II analyses, the capability of Washington airports to accommodate projected future passenger activity was evaluated based on passenger terminal capacity. The need for additional passenger facilities is driven by the level of peak hour activity experienced at the airport and not the overall annual volume of passengers. The analyses determined that six airports either currently exceed peak hour passenger capacity or are expected to exceed their peak hour passenger capacity by 2030. The six airports include:

- Anacortes
- Kenmore Air Harbor, Inc.
- Kenmore Air Harbor Seaplane Base
- Orcas Island
- Seattle-Tacoma International
- Tri-Cities

The projected passenger terminal expansion requirements for each of the above airports are presented in Figure 10.

**Figure 10: Passenger Terminal Expansion Requirements**

Airport	2005 Terminal Peak Hr Capacity	2005		2030		
		Peak Hour Passengers	Capacity Utilization (%)	Peak Hour Passengers	Capacity Utilization (%)	Add'l Terminal Area Required (sq. ft.)
Anacortes	9	9	100%	32	350%	4,025
Kenmore Air Harbor, Inc.	8	8	100%	13	161%	875
Kenmore Air Harbor SPB	8	8	100%	13	161%	875
Orcas Island	7	7	100%	11	153%	700
Seattle-Tacoma Int'l	8,065	4,800	68%	10,274	127%	386,575
Tri-Cities	271	185	68%	313	115%	7,350

With the exception of Seattle-Tacoma International Airport, the passenger terminal expansions required at those airports exceeding their 2030 peak hour passenger capacities are not significant and it is assumed that the required expansion can be accommodated within the existing airport footprint.

In addition to the airports expected to require expansion of their passenger facilities by 2030, four additional airports are forecast to exceed the 60 percent threshold at which planning for facility expansion should begin. The airports exceeding the 60 percent planning threshold by or before 2030 include:

- Pangborn Memorial
- Friday Harbor
- Pullman/Moscow Regional
- Spokane International

## **Air Cargo**

The air cargo analysis identified 15 Washington airports with at least some level of cargo activity; however, over 98 percent of statewide cargo tonnage was processed through three facilities: Seattle-Tacoma International, Boeing Field/King County International and Spokane International Airport. The general findings and conclusions of the Phase II demand capacity analysis for air cargo facilities at Washington airports are summarized below.

- Air cargo companies build facilities when they are needed.
- Facility expansion occurs as demand grows.
- Excess capacity seldom exists.
- Availability of aircraft parking apron is often the key determinant of an airport's ability to serve air cargo.

- Key factors influencing future growth are geographic location and apron/land availability.
- Availability of off-airport properties for cargo processing facilities provide a way around limitations on developable land at airports.

Additional airport-specific findings were developed for the top three cargo airports noted above. The analysis found that both Seattle-Tacoma International and Boeing Field/King County International are at or above 60 percent cargo capacity. The availability of off-airport cargo processing facilities may be an important determinant in the need for new or additional on-airport facilities.

A study of air cargo in the Puget Sound Region was completed by the Puget Sound Regional Council in 2006. This study addresses airside, landside and regional surface transportation needs to accommodate future air cargo activity within the region and at Seattle-Tacoma International and Boeing Field/King County International Airports specifically. The PSRC study ultimately provides a comprehensive strategy for dealing with future air cargo needs in the Puget Sound region.

Outside of the Puget Sound region, Spokane International was identified in the LATS Phase II cargo analysis as having limited cargo capacity due to the small size of its existing cargo buildings; in reality, however, extensive aircraft apron capacity at Spokane points to potential for expansion. The analysis found no evidence of constraints to air cargo activity at other Washington system airports.

## **Airspace Analysis**

Airspace relevant in this analysis encompasses not only the Part 77 surfaces associated with individual airports but also the airspace over the entire state where aircraft are actively controlled by Federal Aviation Administration (FAA) Air Traffic Control personnel. The FAA currently controls the flight of aircraft using any of the air routes over the state, through either Terminal Radar Approach Control (TRACON) facilities or Air Route Traffic Control Centers (ARTCC). While no analytical studies have been undertaken to quantify the capacity of this airspace, it is certain

that there is a finite limit to available airspace and its ability to accommodate levels of increase reporting aircraft operations. FAA is beginning a project to define how to measure this capacity, but results from the project are unlikely to be available in time to be used for this analysis. To attempt to add some perspective to this element, planners met with FAA personnel to discuss the state's airspace issues. The following observations were recorded. These must be considered when deciding on particular long-range aviation development strategies:

- The current airspace architecture could not accommodate a full build out scenario for all of the airports within the state. In managing the airspace, FAA must not only separate aircraft from aircraft based on the technological requirements of the airplanes themselves, but also separate aircraft from airspace to account for the fact that the controllers operate in sectors of the airspace rather than within the total airspace environment.
- The exact capacity of the airspace is too complex a concept for FAA to define. Many factors come into play such as structural elements (airspace designations, TRACON Control, etc.), technological elements (separations required between aircraft to account for wake turbulence, speed differentials, and the limitations of the approaches to individual airports) and human elements (the ability of a human being to actively manage airspace).
- Making changes to existing airspace control structure is extremely difficult. Multiple ATC groups control individual elements within the airspace and coordinated action will be required.
- The environmental impacts of changes to current flight routes are potentially severe and would require detailed Environmental as well as Technical Analyses.
- The primary issue for future consideration when discussing airspace capacity are the flight corridors between airports. In certain regions in the United States - in the Northeast and in California specifically – concerns regarding airspace reaching capacity have led to steps being taken to maximize available resources. These steps have included increasing the number of TRACON facilities, examination of “independent flight tracks” between airports, and redesign of the control structure. This process has consumed considerable time and effort. Currently no

plans are in place for similar efforts in the Northwestern United States.

In addition to these general observations, specific comments related to the state of Washington include:

- For the majority of the state's airspace, capacity is not expected to be an issue during the twenty year period covered in this study. Within the Special Emphasis Areas, particularly the Puget Sound and Southwest areas, the issue will arise within the planning period regardless of the action taken by the council.
- In the Puget Sound Special Emphasis Area the relationship between Paine Field and the other airports in the area is complicated by the fact that Paine Field is managed by a different TRACON than the other facilities. Any additional activity assigned to Paine Field can be expected to slow down operations at other airports within the region.
- Active management techniques have been successful in alleviating current airspace issues within the Puget Sound, Spokane and Southwest Special Emphasis Areas. Some additional traffic will be manageable through changes in FAA management structure and policies.

### **Key Airspace Findings**

Although airspace overlaps do occur between certain airports in the state, the impact of those overlaps on the operational capacity of the affected airports is more a function of the "flexible" elements of the capacity equation rather than a function of the fixed elements. For example, capacity constraints that may exist during periods of low visibility when airports are operating under instrument conditions may be non-existent during visual conditions. The variability of local weather conditions in the Pacific Northwest may mean that while one airport is experiencing reduced visibility and operating limitations another nearby airport is operating without constraints. The interaction of air traffic between the two airports is an on-going challenge for ATC staff. Key airspace findings are summarized below:

- No significant airspace overlaps occur outside of the Special Emphasis Regions.
- The majority of overlaps occur within the Puget Sound Special Emphasis Region where population is the most concentrated.
- Airspace within Washington State is subject to overlap from airports outside of the state. More specifically, airports in Southwest Washington are affected by Portland International Airport.
- Seattle-Tacoma International Airport (SEA) and Boeing Field/King County International Airport (BFI) demonstrate the largest airspace overlap in terms of potential operational conflict. As such, their proximity necessitates flight path coordination between the two airports.

## Aircraft Storage

Aircraft storage requirements include both uncovered aircraft apron tiedown positions as well as aircraft hangar positions serving both transient and permanently based aircraft. During Phase II, unconstrained demand forecasts were prepared and an allocation of based aircraft to Washington Airports was made with similar unconstrained assumptions. The capability of each airport to accommodate its share of the overall based aircraft demand was calculated as a function of its existing based aircraft capacity, as well as projections of additional future basing capacity that could be developed utilizing existing undeveloped airport land.

Aircraft parking and storage is generally constructed “on demand”, that is tiedown positions and aircraft hangars are typically only constructed as the demand occurs. As a result, existing (2005) aircraft storage facilities cannot be relied upon as an indicator of an airport’s ability to accommodate future demand.

In Phase II, aircraft basing capabilities for Washington airports was calculated for two benchmark periods, 2015 and 2030, assuming conversion of undeveloped airport land to aircraft basing facilities as cited above. Also, the basing capacity assigned to an airport considered not only the undeveloped land available for conversion to aircraft storage, but

also the type and size of facilities required using the fleet mix allocation of the demand forecasts. For this analysis, only the results of the 2030 benchmark period are presented on the assumption that these estimates represent full build-out of airport properties available for aircraft storage purposes. An airport projected to have a 2030 aircraft storage demand exceeding the available aircraft storage facilities will need to either convert existing land committed to other uses to aircraft storage or acquire additional land if it is to meet the projected demand.

Washington airports identified as experiencing a 2030 aircraft storage demand greater than their maximum potential storage capacity are listed by region in Figure 11. The additional land area required to meet the 2030 demand is also indicated in the figure.

**Figure 11: Airports Exceeding Aircraft Storage Capacity by 2030**

	2030 Demand	2030 Capacity	2030 Utilization (%)	Add'l Land Needed to Meet Excess Demand (in Acres) <sup>1</sup>
<b>North Central RTPO</b>				
Cashmere Dryden	88	43	205%	3.8
Chelan Municipal	115	51	225%	5.3
Lost River Resort	3	1	300%	0.2
Methow Valley	20	19	105%	0.1
Tonasket Municipal	18	12	150%	0.5
Twisp Municipal	43	38	113%	0.4
<b>Northeast Washington RTPO</b>				
Colville Municipal	111	20	555%	4.2
<b>Palouse RTPO</b>				
Port of Whitman Bus. Air Center	105	11	955%	7.8
Pullman/Moscow Regional	105	94	112%	0.9
<b>Peninsula RTPO</b>				
Sanderson Field	219	21	1043%	18.3
Sequim Valley	41	35	117%	0.5
Forks Municipal	30	17	176%	1.1
<b>Puget Sound Regional Council</b>				
Boeing Field/King County Int'l	1,410	479	294%	75.6
Crest Airpark	451	325	139%	10.5
Firstair Field	105	87	121%	1.5
Kenmore Air Harbor Inc.	138	0		11.5
Renton Municipal	436	397	150%	3.3
Seattle-Tacoma International	15	4	375%	0.9
Seattle Seaplane Base	4	3	133%	0.1
Sky Harbor	5	0	--	0.4
Swanson Field	25	21	119%	0.3
Shady Acres	43	36	119%	0.6
Vashon Municipal	60	50	120%	0.8
<b>Quad County RTPO</b>				
Davenport Municipal	31	21	148%	0.8
Wilbur Municipal	23	20	115%	0.3
<b>San Juan Islands</b>				
Orcas Island	200	101	198%	8.3
<b>Skagit/Island RTPO</b>				
Whidbey Airpark	33	0	--	2.8
<b>Southwest Washington RTC</b>				
Goldendale Municipal	51	16	319%	2.9
Goheen Field	141	87	162%	4.5
Pearson Field	281	154	182%	10.6

**Figure 11: Airports Exceeding Aircraft Storage Capacity by 2030 (continued)**

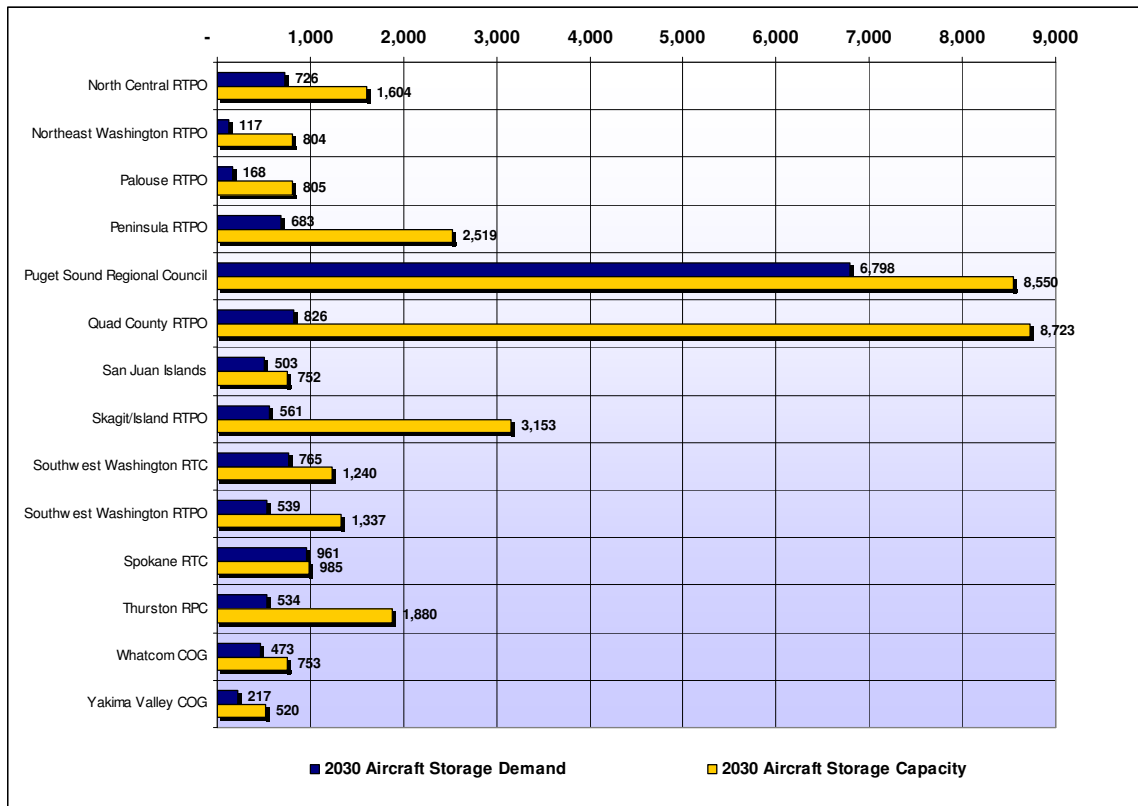
	2030 Demand	2030 Capacity	2030 Utilization (%)	Add'l Land Needed to Meet Excess Demand (in Acres) <sup>1</sup>
<b>Southwest Washington RTPO</b>				
Packwood	6	2	300%	0.3
Willapa Harbor	5	0	--	0.4
Woodland State	23	20	115%	0.3
<b>Spokane RTC</b>				
Cross Winds	3	2	150%	0.1
Felts Field	565	310	182%	21.3
<b>Thurston RPC</b>				
Western Airpark	79	0	--	6.6
<b>Whatcom COG</b>				
Blaine Municipal	49	35	140%	1.2
Lynden Municipal	49	15	327%	2.8
<b>Yakima Valley COG</b>				
Sunnyside Municipal	16	14	114%	0.2

Source: WSDOT LATS Phase II Report, Chp. 12, Figure 175.

Note: <sup>1</sup>Additional land area requirement calculated at the rate of 12 aircraft storage positions/acre.

There is a broad distribution of airports across the state expected to experience a shortfall in aircraft storage capacity by 2030, although the region with the greatest concentration of such airports is the Puget Sound Special Emphasis Area. However, for all Washington airports with a 2030 aircraft parking and storage shortfall, there exist other facilities nearby with capacity available to accommodate the excess demand. As shown in Figure 12 below, the level of aircraft storage capacity available on a regional basis still exceeds the anticipated demand in each regions with individual airports experiencing aircraft storage shortfalls by 2030.

**Figure 12: 2030 Aircraft Storage Demand v. Capacity**



## **STATE/REGIONAL IMPACTS AND IMPLICATIONS**

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The following discussion summarizes the findings and conclusions of the demand capacity analyses in order to set the context for and focus of the alternatives analysis to follow. It should be noted that, relative to aircraft operations, passengers and air cargo, airports can and routinely do operate over capacity. However, operating under such conditions can result in congestion, delays, reduced service levels, and increased costs throughout the entire aviation system. In contrast, aircraft parking and storage requirements depend on a fixed allocation of land area for each aircraft to be accommodated. As a result, there is little or no flexibility to operate above aircraft parking and storage capacity as this capacity is dictated by the finite land resources available at the airport. Each demand component is discussed below.

### **Aircraft Operations Capacity**

Only four airports are anticipated to exceed 100 percent of their operating capacity by 2030 – all four are located within the Puget Sound Special Emphasis Area. Each of the four airports serves a different role and segment of the aviation community. Seattle-Tacoma International Airport is the region's sole commercial air carrier airport providing access to national and international markets. Boeing Field/King County International Airport (BFI) serves primarily as a corporate/business aviation facility while also accommodating air cargo and limited scheduled passenger service within the region. In contrast, Harvey Field is an outlying suburban airport primarily serving sport/recreational flying by small aircraft. Lastly, Kenmore Air Harbor, Inc. is a seaplane facility providing scheduled service to the San Juan Islands, as well as serving the recreational seaplane market. Consequently, each of the four airports has its own unique market base and operating requirements. The alternatives analyses will need to consider the differences between these facilities and the unique markets they serve in evaluating potential capacity solutions.

In addition to the four Washington airports expected to exceed operations capacity during the planning period, eight additional state airports were identified as exceeding the 60 percent capacity planning threshold – the

activity level at which planning should commence for adding capacity – by 2030. Five of these airports are also located within the Puget Sound Region. Consequently, nine airports within the Puget Sound Special Emphasis Area are expected to exceed or approach their operations capacity by 2030.

While the Phase II analysis calculated the overall operations capacity of airports within the Puget Sound area at nearly 5 million, 2030 operations demand was projected at 2.9 million, suggesting a regional system demand of 57 percent of overall regional capacity. However, the allocation of demand by aviation market segment and airport service level must be considered in any alternatives considering the redistribution of operations between airports. Clearly, excess operations at Seattle-Tacoma International cannot be redistributed to Harvey Field, and airports receiving the additional activity cannot be facing their own capacity limitations. Consequently, the definition of alternatives and the parameters against which they are evaluated will be critical to the viability of any recommended capacity solutions.

## **Passengers**

As noted above, the peak hour capacity of the airport passenger terminal facilities is the metric used in determining an airport's ability to accommodate future demand. Six Washington airports are projected to exceed their peak hour terminal capacity by 2030. Of the six airports, Seattle-Tacoma International is the only airport at which significant expansion would be required to fully accommodate 2030 forecast demand. Even so, it is assumed that all six airports could fully accommodate their passenger terminal expansion requirements within the airport's existing boundaries. The same assumptions hold true for the four additional Washington airports expected to reach the 60 percent planning threshold for passenger terminal expansion by 2030. As a result, airport capability to meet future passenger demand does not lend itself to the alternatives analysis; while a need to expand passenger facilities may have been identified at the indicated airports, it is assumed there are no physical constraints to such an expansion. Therefore, future passenger terminal facility needs are not included in the alternatives analysis.

Clearly, a relationship exists at commercial service airports between aircraft operations and the demand for passenger terminal facilities. Any alternatives under the operations capacity analysis that reflect a reduction of aircraft

operations at Seattle-Tacoma International, for example, would be expected to have an associated impact on passenger levels at the airport. Once the extent of any reduction of operations at Seattle-Tacoma International is determined, the associated reduction in passenger terminal demand can then also be determined.

## **Air Cargo**

The Phase II analysis found that the availability of apron area for cargo aircraft was the critical factor in determining an airport's cargo capacity. It also concluded that Seattle-Tacoma International and Boeing Field/King County International airports are the two Washington airports operating at or above the 60 percent capacity planning threshold. However, the analysis also found that the cargo capacity of an airport is difficult to determine, given the potential for development of off-airport cargo processing facilities. As a result, the actual "cargo capacity" of the airport is the through-put rate that may be achieved from the apron area allocated to cargo activity. The apron through-put rate will also be a function of the size of aircraft using the apron, configuration of the cargo (such as containerized or palletized cargo) type, capacity of ground handling equipment available, and the ground handling practices of cargo carriers.

While calculations may be made for the tonnage of through-put capacity of on-airport cargo processing buildings, the potential for off-airport processing limits the usefulness of this information. Consequently, while the Phase II analysis included cargo and freight forecasts for those Washington airports with cargo service, it drew no specific conclusions as to airports constrained to meeting future cargo demand. As a result, air cargo capacity is only generally addressed in the alternatives analysis.

## **Aircraft Parking and Storage**

As previously stated, the long-term aircraft parking and storage capabilities of Washington airports assumed maximum build-out of undeveloped airport land. For basing capacity to expand beyond the levels calculated under the Phase II analysis, either additional land acquisition would need to occur, or other existing airport facilities would need to be redeveloped for commitment to aircraft parking and storage use.

Under the Phase II analysis, 40 Washington airports were identified as exceeding their maximum estimated aircraft parking and storage capacity by 2030. While these airports were broadly distributed throughout Washington, 12 or nearly one-third of the airports are located within the Puget Sound Special Emphasis Area. By 2030, the projected demand for aircraft parking and storage in the Puget Sound region constitutes approximately 70 percent of the theoretical maximum storage capacity of all Puget Sound area airports. Given that some airports may not be able or willing to expand to their theoretical maximum aircraft storage capacity, the ultimate need for parking and storage space at those airports that are able or willing to expand may be greater than anticipated based on the Phase II analyses. Aircraft storage presents a more critical issue within the Puget Sound Special Emphasis Area due to the concentration of airports and aviation activity than in other areas. With the exception of Goheen and Pearson Fields in Southwest Washington, the remaining Washington airports expected to exceed aircraft parking and storage capacity have alternative airport facilities located nearby.

## **Summary of Capacity Constrained Airports**

Those airports expected to experience constraints by 2030 are listed by capacity indicator in Figure 13 below. These are the airports subject to the scenario analyses. The alternative scenarios for addressing the anticipated shortfalls in capacity at each of the airport are the subject of the analyses in Chapter Four of this report.

**Figure 13: Summary of Airports with Capacity Constraints**

Capacity Component		Airports with Constraints by 2030	
<b>Aircraft Operations (100% of capacity)</b>		<ul style="list-style-type: none"> <li>Boeing Field/King County International (BFI)</li> <li>Harvey Field</li> <li>Kenmore Air Harbor, Inc.</li> <li>Seattle-Tacoma International (SEA)</li> </ul>	
<b>Passenger Facilities</b>		<ul style="list-style-type: none"> <li>Anacortes</li> <li>Kenmore Air Harbor, Inc.</li> <li>Kenmore Air Harbor SPB</li> <li>Orcas Island</li> <li>Seattle-Tacoma International</li> <li>Tri-Cities</li> </ul>	
<b>Air Cargo</b>		<ul style="list-style-type: none"> <li>No Airports Exceeding Capacity</li> </ul>	
<b>Aircraft Parking &amp; Storage</b>		<ul style="list-style-type: none"> <li>Blaine Municipal</li> <li>Boeing Field/King County Int'l</li> <li>Cashmere Dryden</li> <li>Chelan Municipal</li> <li>Colville Municipal</li> <li>Crest Airpark</li> <li>Cross Winds</li> <li>Davenport Municipal</li> <li>Felts Field</li> <li>Firstair Field</li> <li>Forks Municipal</li> <li>Goheen Field</li> <li>Goldendale Municipal</li> <li>Kenmore Air Harbor Inc.</li> <li>Lost River Resort</li> <li>Lynden Municipal</li> <li>Methow Valley</li> <li>Orcas Island</li> <li>Packwood</li> <li>Pearson Field</li> </ul>	<ul style="list-style-type: none"> <li>Port of Whitman Business Air Center</li> <li>Pullman/Moscow Regional</li> <li>Renton Municipal</li> <li>Sanderson Field</li> <li>Seattle-Tacoma International</li> <li>Seattle Seaplane Base</li> <li>Sequim Valley</li> <li>Shady Acres</li> <li>Sky Harbor</li> <li>Sunnyside Municipal</li> <li>Swanson Field</li> <li>Tonasket Municipal</li> <li>Twisp Municipal</li> <li>Vashon Municipal</li> <li>Western Airpark</li> <li>Whidbey Airpark</li> <li>Wilbur Municipal</li> <li>Willapa Harbor</li> <li>Woodland State</li> </ul>

## Additional Factors Affecting System Capacity

The capacity constraints cited above and analyzed under the LATs process are not the sole factors affecting Washington Aviation system capacity. Analysis of other factors is beyond the scope of this study and, in many cases, beyond the purview of WSDOT/Aviation and the State. However, a few of these additional factors are presented below in order to acknowledge the complex

issues impacting the management of the state system. Additional factors that may impact the Washington aviation system capacity in the future include but are not limited to:

- Fuel prices and the state of the U.S. economy.
- Long-term trends in aircraft ownership and utilization.
- The extent of Federal funding available through FAA.
- The potential loss of system capacity provided by privately-owned airports, which are at higher risk for closure.
- The distribution of system capacity between airport classifications relative to the distribution of demand.
- The geographic distribution of system capacity relative to the geographic distribution of demand.
- The airports most likely to experience capacity constraints are also the most likely to have statewide impacts.
- Trends contributing to the loss of air service at smaller commercial service airports.
- Surface transportation and congestion and its impact on distribution of aviation system demand.
- Competitive pressures between system airports.

As noted in the LATIS Phase II report:

Although the capacity of airports is measured through separate analyses of specific facilities (e.g., airside, passenger terminal, air cargo, aircraft storage), the fact is that all of these elements are interrelated at an airport. Increasing airfield demand is directly related to increasing demand on terminal, cargo, aircraft storage and other facilities. Consequently, improving the capacity of a single element such as the airfield can lead to increased demand for other, landside based facilities. Additionally, as demand and capacity grow at individual airports, the strain on the system's airspace capacity also increases. Therefore, solutions proposed for addressing capacity deficiencies at an airport must give consideration to

the full range of consequences that such an action may have on the capacity of the remaining facilities at the airport.

Similarly, in addressing identified regional capacity issues, it is important to remember that an airport that has excess capacity to accommodate increased operations will be attractive to all classes of system users. For instance, when considering where potential increases in passenger traffic can be accommodated within the state, it must be remembered that the same airports that have the physical facilities, locational attributes, and socioeconomic characteristics to attract commercial passenger traffic may also be in demand for other types of aviation activity such as general aviation. Therefore, when considering the potential of an airport to take on, for example, a commercial service role, it should be recognized that the same airport may also represent a desirable location for excess cargo and corporate general aviation activity that cannot be accommodated at other airports in the region. In some instances, it is likely that the capacity of the airport in question will not be sufficient to accommodate all classes of potential new demand.

# SUMMARY OF PERFORMANCE ISSUES FACING STATE

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As the previous discussion shows, deficiencies in the amount of aviation activity that system airports can accommodate are concentrated in a few key areas of the state and a relatively small number of airports. Deficiencies in the type of aviation that the airport system can handle are more widespread. These deficiencies relate to the performance objectives for the various state airport classifications.

## Airport Classifications and Performance Objectives

Figure 14 shows the distribution of Washington's public use airports among the six classifications developed to identify their role and service level.

**Figure 14: Distribution of Airports by Classification**

Classification	No. of Airports	Description
Commercial Service	16	Accommodates at least 2,500 scheduled passenger boardings per year for at least three years.
Regional Service	19	Serves large or multiple communities; all NPIAS Relievers; 40 based aircraft and 4,000-foot long runway, with exceptions
Community Service	23	Serves a community; at least 20 based aircraft; paved runway
Local Service	33	Serves a community; fewer than 20 based aircraft; paved runway
Recreation or Remote	39	Other land-based airports, including residential airparks
Seaplane Bases	9	Identified by FAA as a seaplane base, unless it is a Commercial Service Airport

Commercial Service and Regional Service Airports have the largest service areas in terms of driving time and population. They accommodate high levels of activity and are typically capable of handling high performance aircraft (regional/corporate jets and turboprops). The accessibility goal behind Regional Service Airports is:

- Nearly every Washington resident should be able to reach a “jet-capable” Regional Service Airport or comparable Commercial Service Airport within 90 minutes.

All but one percent of the state’s residents are within 90 minutes of a Regional Service or comparable Commercial Service Airport.

The Community Service and Local Service Airports serve small- to medium-sized communities. These airports accommodate a wide range of general aviation activity that is important to the community’s economic well-being and quality of life.

The Recreation or Remote Airports and Seaplane Bases serve narrower scopes of general aviation. They owe their existence to geographic circumstances (e.g., a residential airpark, recreational destination, body of water, or emergency landing area in the mountains).

Performance objectives set targets for each classification in order to evaluate facilities, services, and other factors important to preserving the airport system. Figure 15 summarizes the performance objectives developed in Phase II of LATS and shows their applicability to the various state classifications. There are two types of performance objectives – those that relate to all classifications and those that are customized for the facilities and services appropriate to each classification.

**Figure 15: Performance Objectives and Their Applicability to Airport Classifications**

	Objective	Com- mercial Service	Regional Service	Community Service	Local Service	Recreation or Remote	Seaplane Base
<b>Operational Factors</b>	<i>Standard runway safety area</i>	X	x	X	x	x	NA
	<i>Runway PCI 75</i>	X	x	X	x	x	NA
	<i>Taxiway PCI 70</i>	X	x	X	x	x	NA
	<i>Apron PCI 70</i>	X	x	X	x	x	NA
	<i>No obstacles in threshold siting surface</i>	X	x	X	x	x	X
	<i>No obstacles in obstacle free zone</i>	X	x	X	x	x	X
<b>Plan</b>  <b>Land Use Compatibility Protection</b>	<i>Planning documents less than 7 years old</i>	X	x	x	x	x	X
	<i>Compatibility policies in comprehensive plan</i>	X	x	x	x	x	X
	<i>Appropriate zoning designation for airport</i>	X	x	x	x	x	X
	<i>Land use controlled in runway protection zones</i>	X	x	x	x	x	X
	<i>Height hazard zoning or regulations</i>	X	x	x	x	x	X
	<i>Zoning discourages incompatible development</i>	X	x	x	x	x	X
<b>Facilities</b>       <b>Services</b>	<i>Runway Length</i>	<i>5,000 feet</i>	<i>5,000 feet</i>	<i>3,200 feet</i>	<i>2,400 feet</i>	<i>No objective</i>	<i>No objective</i>
	<i>Taxiway</i>	<i>Parallel</i>	<i>Parallel</i>	<i>Parallel</i>	<i>Turn-around</i>	<i>Turn-around</i>	<i>No objective</i>
	<i>Instrument Approach</i>	<i>Lower than 3/4 mile visibility minimum</i>	<i>Lower than 3/4 mile visibility minimum</i>	<i>1 mile visibility minimum</i>	<i>No objective</i>	<i>No objective</i>	<i>No objective</i>
	<i>Lighting</i>	<i>Medium</i>	<i>Medium</i>	<i>Medium</i>	<i>Low</i>	<i>Reflectors</i>	<i>NA</i>
	<i>Visual Glide Slope Indicators</i>	X	x	x	x	<i>No objective</i>	<i>NA</i>
	<i>Weather Reporting</i>	<i>AWOS or ASOS</i>	<i>AWOS or ASOS</i>	<i>Super-Unicom</i>	<i>No objective</i>	<i>No objective</i>	<i>No objective</i>
	<i>Dock Facility</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>Yes</i>
	<i>Fuel Sales</i>	<i>Jet A and 100LL</i>	<i>Jet A and 100LL</i>	<i>100LL</i>	<i>No objective</i>	<i>No objective</i>	<i>No objective</i>
	<i>Maintenance Service</i>	<i>Major</i>	<i>Major</i>	<i>Minor</i>	<i>No objective</i>	<i>No objective</i>	<i>No objective</i>

The Commercial Service and Regional Service Airports have the same facility and service objectives because of the similarity of baseline needs for commercial passenger jets and corporate jets.

Performance objectives for Community Service Airports are focused on providing airports with the capability to accommodate air taxi operations, including potential operations in very light jets (VLJ).

Local Service Airports have facility and service objectives geared towards small piston general aviation and visual operations.

Recreation or Remote Airports and Seaplane Bases have no service objectives and few facility objectives, reflecting the lower level of facilities and services needed at these airports compared to the other classifications.

## **Summary of System Performance**

Development of a new Northeast Washington Airport near Colville is needed to achieve the goal of providing adequate access to Regional Service Airports.

Privately-owned airports generally do not perform as well as publicly-owned airports in all classifications. This is likely because privately-owned airports do not have the same access to public grant funding, nor is the same level of effort undertaken to protect their long-term viability, compared to publicly-owned airports. These airports have a higher risk of converting to other uses, compared to similarly sized airport that are publicly owned. Also, encroachment of incompatible development may inflate property taxes leading to conversion to other uses.

Compliance with operational factors is summarized below:

- Nearly all the Commercial Service and Regional Service airports meet the runway safety area objective, while few of the Local Service and Recreation or Remote airports do.
- Washington's airports with airfield pavements perform well for the pavement condition objectives.

**Operational Objectives**

Standard Runway Safety Area  
Runway PCI 75  
Taxiway PCI 70  
Apron PCI 7-  
No obstacles in Threshold Siting Surface  
No obstacles in Obstacle Free Zone

**Statewide Compliance**

45%  
79%  
73%  
70%  
not measured  
not measured

WSDOT will launch a pilot program in 2009 to survey obstructions, which will provide a means for measuring more airports for the threshold siting surface and OFZ objectives.

Very few Recreation or Remote Airports have up-to-date plans, while nearly all the Regional Service Airports do. The majority of Commercial Service and Community Service Airports have up-to-date plans. One-third of the Seaplane Bases have up-to-date plans.

**Up-to-Date Plan**

ALP or Master Plan less than 7 years old

**Statewide Compliance**

53%

Compliance with nearly all the land use compatibility objectives is noticeably lower than compliance with other performance objectives previously discussed. This indicates that the State may need to take significant action in assisting local jurisdictions with meeting the provisions of state law requiring land use compatibility protection around airports. Without land use compatibility protection, the existing capacity and capability of some airports is in jeopardy, as is the ability to expand airport capacity and capability to meet future needs.

**Land Use Compatibility Protection**

Compatibility policies  
Appropriate airport zoning  
RPZ control  
Height hazard control  
Compatibility control by zoning

**Statewide Compliance**

35%  
51%  
62%  
53%  
22%

Compliance with facility and service objectives varies greatly by classification and objective. The facility objective with the lowest compliance for all applicable classifications is the instrument approach objective.

<b><u>Classification and Objective</u></b>	<b><u>Compliance</u></b>
<b><u>Runway Length</u></b>	
Commercial Service	81%
Regional Service	68%
Community Service	57%
Local Service	82%
<b><u>Taxiway</u></b>	
Commercial Service	100%
Regional Service	95%
Community Service	70%
Local Service	55%
Recreation or Remote	28%
<b><u>Instrument Approach</u></b>	
Commercial Service	63%
Regional Service	37%
Community Service	22%
<b><u>Lighting</u></b>	
Commercial Service	100%
Regional Service	89%
Community Service	78%
Local Service	94%
Recreation or Remote	26%
<b><u>Visual Glide Slope Indicators</u></b>	
Commercial Service	86%
Regional Service	74%
Community Service	61%
Local Service	24%
<b><u>Weather Reporting</u></b>	
Commercial Service	88%
Regional Service	84%
Community Service	48%
<b><u>Dock Facility</u></b>	
Seaplane Bases	89%
<b><u>Fuel Sales</u></b>	
Commercial Service	81%
Regional Service	84%
Community Service	61%
<b><u>Maintenance Service</u></b>	
Commercial Service	88%
Regional Service	79%
Community Service	57%

Aviation forecasts indicate some airports will grow over the planning period, necessitating a change to a classification with more demanding performance objectives. For example, the number of based aircraft at several Local Service Airports are projected to grow to more than 20, the threshold for a Community Service Airport, by 2030.

## Constraints to Meeting Performance Objectives

Certainly funding is a constraint to making the airport improvements necessary to reach 100% compliance for all performance objectives. Even with significant increases in federal, state, and local funding for airport improvements, it would take years to effect statewide compliance with the performance objectives. However, other constraints besides funding also apply to attaining compliance with performance objectives, as described below.

Privately owned airports generally show the lowest level of compliance with performance objectives and are the most vulnerable to closure. Privately owned airports in the Regional Service classification, in particular, are a source of concern. Regional Service Airports' ability to accommodate jet traffic makes them vital assets for regional economic development and quality of life. Also, Regional Service Airports meeting their performance objectives play an important role in accepting emergency passenger and cargo flights in large aircraft, in the case that Commercial Service Airports or ground transportation modes are incapacitated by natural or manmade disaster. The vulnerability of private Regional Service Airports to closure presents a system weakness. In addition, Regional Service Airports include the airports most likely to grow into new Commercial Service Airports in the future.

Privately owned airports are not the only ones vulnerable to closure. Several publicly-owned Regional Service and Community Service Airports located in or near urban areas are also at risk of closure. It is difficult for these airports to be financially self-sufficient since they lack Commercial Service Airports' ability to generate revenue from airlines, concessions, and auto parking. From the perspective of their public airport owners, airport closure would eliminate constituent complaints about aircraft noise and would provide land that could be redeveloped to generate more tax revenue and employment.

Some airport sponsors may not want to meet performance objectives that would expand airport property or make their airport capable of handling larger and faster airplanes.

In some areas, such as northeast Washington where a Regional Service Airport is needed, a willing and eligible local airport sponsor may not be available.

Constraints to meeting performance objectives include environmental factors and other factors on a case by case basis. For example, in order for Grand Coulee Dam Airport to meet its runway length objective, the airport would have to expand into Lake Roosevelt. In this case, a Community Service Airport within the same regional service area might be a better candidate for a Regional Service Airport than Grand Coulee Dam Airport.

DRAFT

# ALTERNATIVE SCENARIOS FOR ADDRESSING SYSTEM CONSTRAINTS

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Presented below are alternative scenarios for addressing Washington aviation system constraints. The scenarios explore a range of responses by the State, working through WSDOT/Aviation, to address constraints to aviation system capacity by 2030 and constraints to meeting airport performance objectives. Four scenarios are presented, each representing a different level of response to meeting future demand and performance objectives. Each of the four capacity indicators is individually analyzed in relation to each response scenario. The scenarios are defined as follows:

## **Scenario One: No Action**

This scenario assumes no specific action by WSDOT/Aviation to manage or address future capacity relative to future system demand. Under this scenario, the market place will operate freely and determine the outcomes. Any changes in system capacity will result from individual airport and local community decisions and actions, potentially with FAA participation and support. Under this scenario there is no assurance that system capacity will accommodate system demand.

This scenario also assumes no appreciable change in WSDOT/Aviation policies and funding programs. State airport grants would continue to focus on matching FAA AIP grants and preserving the existing airport system, primarily through grants for airfield pavement projects.

## **Scenario Two: Manage Existing System Facilities and/or Demand**

Under Scenario Two, the State will work within the limits of its authority to influence or manage capacity relative to demand. The State will promote the use of existing system-wide resources to address capacity short-falls - including the possibility of shifting demand to alternate airports. Airports with available existing capacity will be encouraged to absorb excess demand from nearby airports that are over capacity. Alternate system airports with the

capability to expand to increase capacity will be encouraged do so. Scenario Two is intended to result in a balancing of the State aviation system through redistribution of demand to those facilities with the capability to accommodate projected activity levels. The State will work with individual airports and the FAA to identify and encourage implementation of new Air Traffic Control technologies and appropriate demand management strategies where these initiatives will assist individual airports in better accommodating future demand.

To improve compliance with performance objectives, WSDOT/Aviation would revise its grant funding program priorities to align with the performance objectives.

### **Scenario Three: Expand Facilities of Those Airports with Capacity Constraints**

Scenario Three explores the potential to accommodate future demand at capacity constrained airports by expansion of the airport facilities. The underlying premise is that capacity will be provided at the airport where the demand occurs, and no effort will be made to balance the system or redistribute demand.

As with Scenario Two, WSDOT/Aviation would revise its grant funding program priorities to align with performance objectives. However, in this scenario, the State would also work more assertively to improve system performance. The State might change the state classifications of airports to improve performance objective compliance, encourage the FAA to make NPIAS additions and deletions that would focus funding on the airports most willing and capable to meet their objectives, change legislation to allow privately owned airports to receive grant funds, or encourage the transfer of privately owned airports to public entities. Where an airport sponsor shows unwillingness or extreme difficulty in meeting performance objectives, the State might encourage transfer to a different, potentially multi-jurisdictional sponsor, or even take on ownership of the airport.

## **Scenario Four: Develop New Airport**

Under Scenario Four, the State will work to promote development of one or more new airports as needed to address long-term demand. Given that capacity constraints are anticipated at general aviation as well as commercial air carrier airports, both types of aviation activity must be addressed by any new facilities. Given the expected lead time in developing any new airports, existing State system airports would still need to expand in the interim period to keep pace with demand. Any new airports should be sized to meet long-term demand extending well beyond the 2030 horizon of this study.

To meet airport performance objectives, the State would employ any of the tactics in Scenario Three, plus encourage the development of one or more new airports. A new airport might be needed to provide the driving time accessibility standards of the airport classifications where it is not financially, politically, or environmentally feasible to improve an existing airport.

## **Alternatives for Airports with 2030 Operations Capacity Constraints**

The analysis of alternatives for those airports experiencing operations capacity constraints by 2030 must consider whether those airports can be expanded to meet the demand, and if not, whether it is feasible to redistribute operations to other airports in the region. This redistribution of operations may occur either as the result of market forces due to increasing levels of congestion and delay at the over-capacity airports, or as a result of management actions designed to shift demand away from the impacted airports to other facilities within the region with available capacity. The capability of the alternative airports to accommodate the additional aviation activity depends on a variety of factors, not the least of which is the airport's ability to serve the type of operations activity that must be redistributed. The following discussion addresses the capabilities of those alternative airports to absorb the operations of the over-capacity facilities. Findings concerning the presence and ability of surrounding airports to absorb excess operations demand will assist in evaluation of the alternative scenarios.

The Washington airports forecast to experience operations capacity constraints by 2030 are noted in Figure 16, along with their respective state classifications.

**Figure 16: Airports with Operations Capacity Constraints in 2030**

Airport	Region	State Classification	2030 Operations Shortfall
Boeing Field/King County Int'l	Puget Sound	Commercial Service	169,181
Harvey Field	Puget Sound	Regional Service	7,636
Kenmore Air Harbor, Inc.	Puget Sound	Commercial Service (Seaplanes only)	27,050
Seattle Tacoma International	Puget Sound	Commercial Service	100,558 <sup>1</sup>

### Commercial Service Airports

Three commercial service airports are forecast to experience capacity shortfalls by 2030. All three airports are located within the Puget Sound Special Emphasis Area. Kenmore Air Harbor, Inc., as a seaplane-only facility, is addressed separately below.

Airports with 2030 operations capacity potentially available as alternate facilities to Seattle Tacoma International and Boeing Field/King County International Airport are listed in Figures 17 and 18. The listing of an airport is not a guarantee that it has or is capable of providing the full range of facilities and services equivalent to Seattle-Tacoma International or Boeing Field /King County International – in fact most fall far short. Some airports such as Renton Municipal, while having reserve operations capacity, may have other limitations such as the inability to accommodate additional based aircraft. As noted earlier, many airports do not meet all the performance objectives identified for their state classification. While it is true that many airports are functioning at their designated state classification in spite of deficiencies relative to the performance objectives, it is expected that a long-term deterioration would occur in the airport's quality of service.

<sup>1</sup> The operations shortfall at Sea-Tac is based on the 2005 FAA Terminal Area Forecast which was adopted for the LATS project. It is important to note that recent trends in aircraft fleet mix and passenger load factors at Sea-Tac have resulted in a decline in aircraft operations, while passenger traffic levels have continued to increase. Based on these trends, the timeframe in which Sea-Tac will reach its operational capacity limits is likely to be extended, and could well fall beyond the 2030 horizon of this study. Nevertheless, it is expected that Sea-Tac will ultimately reach its operational capacity limits and the analysis of potential alternative airports described in the following section of this report assumes that these airports will need to accommodate the originally identified operational shortfall at Sea-Tac.

**Figure 17: Seattle-Tacoma International Airport Alternatives**

Seattle Tacoma International		2030 Operations Shortfall: 100,558		
Alternate Facilities	State Classification	Distance (miles)	2030 Reserve Ops Capacity	2030 % Capacity
<i>Renton Municipal</i> <sup>1</sup>	<i>Regional Service</i>	7	105,663	54%
Snohomish Co./Paine Field	Regional Service	28	116,435	63%
Bremerton (via ferry)	Regional Service	31	121,500	49%
Olympia	Regional Service	60	59,215	74%
<b>Nearby Alternate Airports - Operations Capacity Available</b>			<b>402,813</b>	
Bellingham International	Commercial Service	106	102,903	55%

Note: <sup>1</sup> Airport has aircraft parking and storage limitations in 2030.

**Figure 18: Boeing Field/King County International Airport Alternatives**

Boeing Field/King County Int'l		2030 Operations Shortfall: 169,181		
Alternate Facilities	State Classification	Distance (miles)	2030 Reserve Ops Capacity	2030 % Capacity
<i>Renton Municipal</i> <sup>1</sup>	<i>Regional Service</i>	7	105,663	54%
<i>Auburn Municipal</i> <sup>1</sup>	<i>Regional Service</i>	21	61,051	74%
Snohomish Co./Paine Field	Regional Service	28	116,435	63%
Bremerton National (via ferry)	Regional Service	31	121,500	49%
Pierce Co./Thun Field	Local Community >10	34	140,341	34%
Tacoma Narrows	Regional Service	36	112,903	53%
Arlington	Regional Service	48	42,792	84%
Jefferson Co. Int'l (via ferry)	Local Community >10	57	172,845	25%
Olympia	Regional Service	60	59,215	74%
<b>Nearby Alternate Airports - Operations Capacity Available</b>			<b>932,745</b>	
Bellingham International	Commercial Service	97	102,903	55%

Note: <sup>1</sup> Airport has aircraft parking and storage limitations in 2030.

As is apparent from Figures 17 and 18, based solely on aircraft operations, there is sufficient reserve operations capacity at nearby airports to absorb the 2030 shortfalls at Seattle-Tacoma International and Boeing Field/King County International Airport. However, none of the operations would be able to migrate to equivalent facilities. The nearest Commercial Service airport with operations capacity in 2030 is Bellingham International Airport – approximately 100 miles north of the Seattle area. The alternative airports listed in the figures have been selected solely on their reserve operations capacity, proximity, and the highest classification available, not on their capability to meet Commercial Service Airport performance objectives. However, with the exception of accommodating scheduled passenger service, the performance objectives for Regional Service Airports are identical to those

of Commercial Service Airports. Furthermore, only some segments of the operations activity may be able to relocate to the alternate airport. For example, while recreational/sport aviation could relocate from Boeing Field/King County International to Tacoma Narrows, the air cargo and scheduled passenger activity clearly could or would not.

## Commercial Service/Seaplanes

As a Commercial Service/Seaplane Base, alternative seaplane facilities to Kenmore Air Harbor Inc. are limited to those listed in Figure 19. Although Kenmore Air Harbor SPB/Lake Union has operations capacity available in 2030, it is approaching its overall operating limit. In contrast, Will Rogers/Wiley Post SPB, co-located at Renton Municipal Airport, has ample reserve operations capacity available.

**Figure 19: Kenmore Air Harbor Inc. Airport (Seaplane) Alternatives**

Kenmore Air Harbor Inc.		2030 Operations Shortfall: 27,050		
Alternate Facilities	State Classification	Distance	2030 Reserve Ops Capacity	2030 % Capacity
Kenmore Air Harbor SPB/Lake Union	Seaplane Base	10	13,300	78%
Will Rogers/Wiley Post SPB	Seaplane Base	22	57,613	4%
<b>Nearby Alternate Seaplane Bases - Operations Capacity Available</b>			<b>70,913</b>	

## Regional Service Airports

Harvey Field is the only Regional Service airport forecast to experience operations capacity constraints by 2030. However, with a 2030 shortfall of 7,636 operations, the excess is relatively minor constituting just three percent of the airport's overall operations capacity. As primarily a recreation/sport flying facility, it is likely that the airport could continue to operate at this level for an extended period of time without having significant adverse impacts on the facility or its users. Even so, there is ample reserve operations capacity available at alternate airports within the region

**Figure 20: Harvey Field Airport Alternatives**

<b>Harvey Field</b>		<b>2030 Operations Shortfall: 7,636</b>		
<b>Alternate Facilities</b>	<b>State Classification</b>	<b>Distance</b>	<b>2030 Reserve Ops Capacity</b>	<b>2030 % Capacity</b>
Snohomish Co./Paine Field	Regional Service	10	116,435	63%
Arlington	Regional Service	20	42,792	84%
<i>Whidbey Airpark (via ferry)<sup>1</sup></i>	<i>Recreation/Remote</i>	<i>28</i>	<i>165,389</i>	<i>4%</i>
<i>Renton Municipal I<sup>1</sup></i>	<i>Regional Service</i>	<i>34</i>	<i>105,663</i>	<i>54%</i>
Skagit Regional	Regional Service	47	185,374	31%
Wes Lupien	Local Community <10	53	156,100	10%
Bremerton (via ferry)	Recreation/Remote	54	121,500	49%
<i>Auburn Municipal<sup>1</sup></i>	<i>Recreation/Remote</i>	<i>59</i>	<i>61,051</i>	<i>74%</i>
Jefferson Co. Int'l (via ferry)	Community Local >10	59	172,845	25%
<b>Nearby Alternate Airports - Operations Capacity Available</b>			<b>1,127,149</b>	

Note: <sup>1</sup> Airport has aircraft parking and storage limitations in 2030.

Matrices applying the Alternative Scenarios to capacity constraints at each capacity constrained airport are provided on the following pages.

Figure 21: Airports with Operations Capacity Constraints/Seattle-Tacoma International

Strategy and Assumptions	Expected/Anticipated System Response	Implications on System and Capacity
Strategy One: No Action		
<ul style="list-style-type: none"><li>State will not attempt to influence or manage demand.</li><li>The market place will operate freely and determine outcomes.</li><li>System capacity will change as a result of individual airport and local community decisions and actions.</li></ul>	<ul style="list-style-type: none"><li>SEA will continue to serve community.</li><li>As service level declines and operating costs increase, demand will shift to the closest alternate airport(s) with available capacity.</li><li>Airlines may:<ul style="list-style-type: none"><li>Reduce scheduled service and/or increase aircraft gauge.</li><li>Relocate to suitable alternate facilities, if available (PAE, OLM, BLI, Bremerton).</li></ul></li><li>Local airports/communities may attempt to respond within the limits of their capabilities.</li><li>Likely “cascade effect” as high-end activity pushes low end, more price sensitive users to outlying airports.</li><li>Limited options for alternate facilities due to scope and nature of activity at SEA.</li></ul>	<ul style="list-style-type: none"><li>Operations at SEA expected to exceed capacity.</li><li>Increasing delays and operating costs, both locally and to overall system.</li><li>Increasing local impacts (noise, traffic, etc.).</li><li>Potential reduction in level of air service.</li><li>Demand shifts to alternate facilities with available capacity.</li><li>Shifts in operations will also affect passenger demands.</li><li>System disruption and inefficiencies during “transition” period(s).</li><li>Passenger convenience and “freedom” reduced.</li><li>System-wide costs increase due to operation delays.</li><li>Airlines will need to schedule based on available “slots” rather than on demand.</li><li>Service likely diminished at other Washington Commercial Service Airports that feed SEA hub operations.</li><li>Negative overall system impacts.</li></ul>

Strategy Two: Manage Existing System Facilities and/or Demand		
<ul style="list-style-type: none"><li>• State will work to influence or manage demand.</li><li>• State will promote use of existing system-wide resources to address capacity short-falls (i.e. alternate airports).</li><li>• Airports with capacity will be encouraged to absorb excess demand from nearby airports over capacity.</li><li>• Alternate system airports with the capability to expand to increase capacity will do so.</li><li>• State will identify and encourage demand management strategies for airport (local) measures, regional measures, state measures and Federal actions.</li></ul>	<ul style="list-style-type: none"><li>• SEA will continue to serve community.</li><li>• As service levels decline and operating costs increase at constrained airports, demand will likely relocate to the closest alternate facilities with available capacity.</li><li>• Likely “cascade effect” as high-end activity pushes low end, more price sensitive users to outlying airports.</li><li>• Local communities receiving displaced activity may have adverse reaction to operations growth.</li><li>• Expect community opposition to scheduled air service at Paine Field (and elsewhere?).</li><li>• SEA manages facilities, services and Air Traffic Control procedures in attempt to maximize operations throughput capacity of runways, taxiways and airspace systems.</li><li>• SEA institutes pricing, disincentives or management practices such as peak-hour pricing, slots or landing fees to distribute peaks and/or ensure that discretionary users or activity shifts to alternate facilities.</li><li>• Airlines may:<ul style="list-style-type: none"><li>- Reduce scheduled service and/or increase aircraft gauge.</li><li>- Relocate to suitable alternate facilities, if available (PAE, OLM, BLI, Bremerton).</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Operations shortfall in 2030: 100,558 <sup>2</sup>.</li><li>• Limits to range of efficiency improvements available – must assume airport is already operating efficiently. High costs for minimal gains?</li><li>• Demand still expected to exceed capacity.</li><li>• Delays and increased operating costs force operators to seek alternate airports.</li><li>• No increase in capacity possible without addition of 4<sup>th</sup> runway.</li><li>• Nearest alternate airport with reserve capacity in 2030 and ability to accommodate large commercial air carrier aircraft is Snohomish County/Paine Field.</li><li>• Overall system impacts<ul style="list-style-type: none"><li>- Increased delay</li><li>- Decreased schedule reliability</li><li>- Less efficient traffic flows</li><li>- Regional economic impacts/Reduced productivity</li><li>- Negative environmental impacts</li><li>- Higher airport operations maintenance and costs</li><li>- Degraded safety margins</li><li>- Redistribution of demand brings key Puget Sound airports to full capacity in 2030 including SEA, BFI, Harvey Field, Snohomish County/Paine Field, Renton, Auburn.</li><li>- Redistributing demand without expansion results in limited reserve capacity in Puget Sound Region beyond 2030.</li></ul></li></ul>
Strategy Three: Expand The Airport Experiencing Capacity Constraints		
<ul style="list-style-type: none"><li>• State will work to promote increased capacity through expansion of those airports that are capacity constrained.</li></ul>	<ul style="list-style-type: none"><li>• Not feasible to increase capacity without new 4<sup>th</sup> runway development. Additional runway highly unlikely.<ul style="list-style-type: none"><li>- Physical limitations to further expansion.</li><li>- Port of Seattle publicly committed to no further runway expansions.</li><li>- Constrained site - major land acquisition and residential relocation required.</li><li>- Commercial activity shifts to PAE, OLM, BLI, and Bremerton National.</li></ul></li></ul>	<ul style="list-style-type: none"><li>• SEA: 15-year effort to develop 3rd runway. No realistic potential to further expand/increase capacity via additional runway development.</li><li>• 2030 operations shortfall can be accommodated at existing alternate airports, but no other airports with capacity can provide equivalent facilities and services.</li><li>• Redistribution of demand brings key Puget Sound airports to full capacity in 2030 including SEA, BFI, Harvey Field, Snohomish County/Paine Field, Renton, and Auburn.</li></ul>
Strategy Four: Develop New Airport		
<ul style="list-style-type: none"><li>• State will work to promote development of new airport(s).</li><li>• New facilities sized to meet demand through 2080 (50-year time frame)</li></ul>	<ul style="list-style-type: none"><li>• Expect 20 to 25-year time lag time to plan and develop a new commercial airport.</li><li>• SEA will experience capacity constraints until new facilities come online.</li><li>• New/additional air carrier operations capacity sized to meet anticipated demand.</li><li>• Expect extensive public opposition.</li><li>• Questionable whether the “political will” can be sustained over time period required.</li></ul>	<ul style="list-style-type: none"><li>• Operations demand met once new airport(s) open in 2025 to 2030.</li><li>• Significant delay to bringing any new capacity on-line – questionable whether this can be accomplished by 2030.</li><li>• 2030 operations shortfalls can be accommodated at existing alternate airports.</li><li>• Redistribution of demand brings key Puget Sound airports to full capacity in 2030 including SEA, BFI, Harvey Field, Snohomish County/Paine Field, Renton, and Auburn.</li><li>• If SEA activity relocates to Paine Field, the case for a new airport may not be sustained.</li></ul>

<sup>2</sup> The operations shortfall at Sea-Tac is based on the 2005 FAA Terminal Area Forecast which was adopted for the LATS project. It is important to note that recent trends in aircraft fleet mix and passenger load factors at Sea-Tac have resulted in a decline in aircraft operations, while passenger traffic levels have continued to increase. Based on these trends, the timeframe in which Sea-Tac will reach its operational capacity limits is likely to be extended, and could well fall beyond the 2030 horizon of this study. Nevertheless, it is expected that Sea-Tac will ultimately reach its operational capacity limits and the analysis of potential alternative airports described in the following section of this report assumes that these airports will need to accommodate the originally identified operational shortfall at Sea-Tac.

**Figure 22: Airports with Operations Capacity Constraints/Boeing Field/King County International**

Strategy and Assumptions		Expected/Anticipated System Response	Implications on System and Capacity
Strategy One: No Action			
<ul style="list-style-type: none"><li>State will not attempt to influence or manage demand.</li><li>The market place will operate freely and determine outcomes.</li><li>System capacity will change as a result of individual airport and local community decisions and actions.</li></ul>	<ul style="list-style-type: none"><li>BFI continues to serve community.</li><li>As service level declines and operating costs increase, demand will shift to the closest alternate airport(s) with available capacity.</li><li>Local airports/communities may attempt to respond within the limits of their capabilities.</li><li>Likely “cascade effect” as high-end activity pushes low end, more price sensitive users to outlying airports.</li></ul>	<ul style="list-style-type: none"><li>Operations expected to exceed capacity by 169,181 in 2030.</li><li>Increasing delays and operating costs, both locally and to overall system.</li><li>Increasing local impacts (noise, traffic, etc.).</li><li>Potential reduction in level of service to all users.</li><li>Demand shifts to suitable alternate facilities with available capacity.</li><li>Shifts in operations will also affect aircraft storage demand levels.</li><li>System disruption and inefficiencies during “transition” period(s).</li><li>Air carrier passenger convenience and “freedom” reduced.</li><li>System-wide costs increase due to operation delays.</li><li>Negative overall system impacts.</li></ul>	
Strategy Two: Manage Existing System Facilities and/or Demand			
<ul style="list-style-type: none"><li>State will work to influence or manage demand.</li><li>State will promote use of existing system-wide resources to address capacity short-falls (i.e. alternate airports).</li><li>Airports with capacity will be encouraged to absorb excess demand from nearby airports over capacity.</li><li>Alternate system airports with the capability to expand to increase capacity will do so.</li><li>State will identify and encourage demand management strategies for airport (local) measures, regional measures, state measures and Federal actions.</li></ul>	<ul style="list-style-type: none"><li>BFI continues to serve community.</li><li>As service level declines and operating costs increase at constrained airports, demand will likely relocate to the closest alternate facilities with available capacity.</li><li>Likely “cascade effect” as high-end activity pushes low end, more price sensitive users to outlying airports.</li><li>Local airports/communities may attempt to respond within the limits of their capabilities.</li><li>Communities receiving displaced activity may have adverse reaction to operations growth.</li><li>BFI manages facilities, services and Air Traffic Control procedures in attempt to maximize operations throughput capacity of runways, taxiways and airspace systems.</li><li>BFI institute pricing, disincentives or management practices such as peak-hour pricing or landing fees to distribute peaks and/or ensure that discretionary users or activity shifts to alternate facilities.</li><li>At BFI, scheduled passenger carriers may:<ul style="list-style-type: none"><li>Reduce scheduled service and/or increase aircraft gauge.</li><li>Relocate to suitable alternate facilities, if available (PAE, OLM, BLI, Bremerton).</li></ul></li><li>BFI limits based aircraft to help manage operations demand.</li><li>Increasing corporate basing and cargo activity will displace smaller GA.</li><li>Larger corporate hangars reduce basing space for smaller aircraft expansion.</li></ul>	<ul style="list-style-type: none"><li>BFI operations shortfall in 2030: 169,181.</li><li>Limits to range of efficiency improvements available – must assume airport is already operating efficiently. High costs for minimal gains?</li><li>Demand still expected to exceed capacity until delays and increased operating costs force operators to seek alternate airports.</li><li>Nearest alternate airport with reserve capacity in 2030 for large cargo and/or corporate aircraft is Snohomish County/Paine Field.</li><li>All Small/GA operations activity can be accommodated at alternate airports.</li><li>Overall system impacts<ul style="list-style-type: none"><li>Increased delay</li><li>Decreased schedule reliability</li><li>Less efficient traffic flows</li><li>Regional economic impacts/Reduced productivity</li><li>Negative environmental impacts</li><li>Higher airport operations maintenance and costs</li><li>Degraded safety margins</li><li>Redistribution of demand brings key Puget Sound airports to full capacity in 2030 including SEA, BFI, Harvey Field, Snohomish County/Paine Field, Renton, and Auburn.</li><li>Redistributing demand without expansions results in limited reserve capacity in Puget Sound Region beyond 2030.</li></ul></li></ul>	
Strategy Three: Expand The Airport Experiencing Capacity Constraints			
<ul style="list-style-type: none"><li>State will work to promote increased capacity through expansion of those airports that are capacity constrained.</li></ul>	<ul style="list-style-type: none"><li>BFI: Not feasible to increase capacity without new runway development<ul style="list-style-type: none"><li>Constrained site - major land acquisition and facility relocations required (including Boeing facilities).</li><li>New runway construction – 15 to 20 years required for implementation</li></ul></li></ul>	<ul style="list-style-type: none"><li>No increase in capacity possible at BFI without a new runway – requires removal/relocation of Boeing Company facilities.</li><li>2030 operations shortfalls can be accommodated at existing alternate airports.</li><li>Redistribution of demand brings key Puget Sound airports to full capacity in 2030 including SEA, BFI, Harvey Field, Snohomish County/Paine Field, Renton, and Auburn.</li></ul>	

	<ul style="list-style-type: none"><li>- Strong community opposition likely.</li><li>- Sport/recreational general aviation activity shifts to other airports.</li></ul>	
<b>Strategy Four: Develop New Airport</b>		
<ul style="list-style-type: none"><li>• State will work to promote development of new airport(s).</li><li>• New facilities sized to meet demand through 2080 (50-year time frame)</li></ul>	<ul style="list-style-type: none"><li>• Expect 20 to 25-year time lag time to plan and develop a new commercial airport.</li><li>• BFI will experience capacity constraints until new facilities come online.</li><li>• General aviation operations needs can be accommodated by existing airports – no new facilities required.</li><li>• Expect extensive public opposition.</li><li>• Questionable whether the “political will” can be sustained over time period required.</li></ul>	<ul style="list-style-type: none"><li>• Operations demand met once new airport(s) open in 2025 to 2030.</li><li>• Significant delay to bringing any new capacity on-line – questionable whether this can be accomplished by 2030.</li><li>• 2030 operations shortfalls can be accommodated at existing alternate airports.</li><li>• Redistribution of demand brings key Puget Sound airports to full capacity in 2030 including SEA, BFI, Harvey Field, Snohomish County/Paine Field, Renton, and Auburn.</li></ul>

**Figure 23: Airports with Operations Capacity Constraints/Harvey Field**

<b>Strategy and Assumptions</b>		<b>Expected/Anticipated System Response</b>	<b>Implications on System and Capacity</b>
<b>Strategy One: No Action</b>			
<ul style="list-style-type: none"><li>• State will not attempt to influence or manage demand.</li><li>• The market place will operate freely and determine outcomes.</li><li>• System capacity will change as a result of individual airport and local community decisions and actions.</li></ul>	<ul style="list-style-type: none"><li>• Harvey Field will continue to serve community.</li><li>• Initial (2030) impact likely negligible but will increase in future years.</li><li>• As service level declines and operating costs increase, demand will shift to the closest alternate airport(s) with available capacity.</li><li>• Local airports/communities may attempt to respond within the limits of their capabilities.</li><li>• Likely “cascade effect” as higher level activity displaces low end, more price sensitive users to outlying airports.</li></ul>		<ul style="list-style-type: none"><li>• Operations at Harvey Field expected to exceed capacity by 7,636 (3%) in 2030.</li><li>• Increasing delays and operating costs, both locally and to overall system.</li><li>• Increasing local impacts (noise, traffic, etc.).</li><li>• Demand shifts to alternate facilities with available capacity.</li><li>• System disruption and inefficiencies during “transition” period(s).</li><li>• Airport user convenience and “freedom” reduced.</li><li>• System-wide costs increase due to operation delays.</li><li>• Negative overall system impacts.</li></ul>
<b>Strategy Two: Manage Existing System Facilities and/or Demand</b>			
<ul style="list-style-type: none"><li>• State will work to influence or manage demand.</li><li>• State will promote use of existing system-wide resources to address capacity short-falls (i.e. alternate airports).</li><li>• Airports with capacity will be encouraged to absorb excess demand from nearby airports over capacity.</li><li>• Alternate system airports with the capability to expand to increase capacity will do so.</li><li>• State will identify and encourage demand management strategies for airport (local) measures, regional measures, state measures and Federal actions.</li></ul>	<ul style="list-style-type: none"><li>• Harvey Field will continue to serve community.</li><li>• Initial (2030) impact likely negligible but will increase in future years.</li><li>• As service level declines and operating costs increase, demand will shift to the closest alternate airport(s) with available capacity.</li><li>• Local airports/communities may attempt to respond within the limits of their capabilities.</li><li>• Likely “cascade effect” as higher level activity displaces low end, more price sensitive users to outlying airports.</li><li>• Local communities receiving displaced activity may have adverse reaction to operations growth</li><li>• No expansion/increase in capacity possible without land acquisition and major expansion.</li></ul>		<ul style="list-style-type: none"><li>• Demand still expected to exceed capacity until delays and increased operating costs force operators to seek alternate airports.</li><li>• All operations shortfall can be accommodated at alternate airports.<ul style="list-style-type: none"><li>- Arlington likely to absorb excess operations without expansion.</li></ul></li><li>• Overall system impacts<ul style="list-style-type: none"><li>- Increased delay</li><li>- Regional economic impacts</li><li>- Reduced productivity</li><li>- Negative environmental impacts</li><li>- Higher airport operations maintenance and costs</li><li>- Degraded safety margins</li><li>- Redistribution of demand brings key Puget Sound airports to full capacity in 2030 including SEA, BFI, Harvey Field, Snohomish County/Paine Field, Renton, and Auburn.</li><li>- Redistributing demand without expansion results in limited reserve capacity in Puget Sound Region beyond 2030.</li></ul></li></ul>
<b>Strategy Three: Expand The Airport Experiencing Capacity Constraints</b>			

<ul style="list-style-type: none"><li>State will work to promote increased capacity through expansion of those airports that are capacity constrained.</li></ul>	<ul style="list-style-type: none"><li>Constrained site: limitations to expansion without land acquisition.</li><li>Not feasible to increase capacity without new runway development</li><li>New runway construction – time frame for implementation unknown</li><li>Level of community opposition unknown.</li><li>Arlington most likely to absorb excess operations.</li></ul>	<ul style="list-style-type: none"><li>Increase in capacity unlikely without major expansion</li><li>2030 operations shortfalls can be accommodated at existing alternate airports.</li><li>Puget Sound airports at 100 percent capacity in 2030: SEA, BFI, Harvey Field, Snohomish County/Paine Field, Renton, Auburn.</li></ul>
<b>Strategy Four: Develop New Airport</b>		
<ul style="list-style-type: none"><li>State will work to promote development of new airport(s).</li><li>New facilities sized to meet demand through 2080 (50-year time frame)</li></ul>	<ul style="list-style-type: none"><li>Expect 20 year time lag time to plan and develop a new general aviation airport.</li><li>General aviation operations needs can be accommodated by existing system airports – no new facilities required.</li><li>Expect extensive public opposition.</li><li>Questionable whether the “political will” can be sustained over time period required.</li></ul>	<ul style="list-style-type: none"><li>Operations demand met once new airport(s) open in 2025 to 2030.</li><li>Significant delay to bringing any new capacity on-line – questionable whether this can be accomplished by 2030.</li><li>2030 operations shortfalls can be accommodated at existing alternate airports without a new airport.</li><li>Redistribution of demand brings key Puget Sound airports to full capacity in 2030 including SEA, BFI, Harvey Field, Snohomish County/Paine Field, Renton, and Auburn.</li><li>Redistributing demand without expansion results in limited reserve capacity in Puget Sound Region beyond 2030.</li></ul>

Figure 24: Airports with Operations Capacity Constraints/Kenmore Air Harbor Inc. (Seaplanes)

Strategy and Assumptions	Expected/Anticipated System Response	Implications on System and Capacity
<b>Strategy One: No Action</b>		
<ul style="list-style-type: none"><li>State will not attempt to influence or manage demand.</li><li>The market place will operate freely and determine outcomes.</li><li>System capacity will change as a result of individual airport and local community decisions and actions.</li></ul>	<ul style="list-style-type: none"><li>Kenmore Air Harbor Inc. will continue to serve community.</li><li>As privately owned public-facility seaplane base primarily serves Kenmore Air.</li><li>Kenmore Air may limit public based aircraft to reduce operations activity.</li><li>As service level declines and operating costs increase, public activity may shift to the closest seaplane facilities with available capacity.</li></ul>	<ul style="list-style-type: none"><li>Operations at Kenmore Air Inc. expected to exceed capacity by 2030.</li><li>Increasing delays and operating costs, both locally and to overall system.</li><li>Increasing local impacts (noise, traffic, etc.).</li><li>Potential reduction in level of scheduled air service.</li><li>Public operations activity may be limited or shift to alternate facilities with available capacity.</li><li>Limits to operations will also affect passenger and/or aircraft storage demand levels.</li><li>System disruption and inefficiencies during “transition” period(s).</li><li>Passenger convenience and “freedom” reduced.</li><li>System-wide costs increase due to operation delays.</li><li>Airline will need to modify schedule to reduce peak period demand.</li><li>Negative overall system impacts.</li></ul>
<b>Strategy Two: Manage Existing System Facilities and/or Demand</b>		
<ul style="list-style-type: none"><li>State will work to influence or manage demand.</li><li>State will promote use of existing system-wide resources to address capacity short-falls (i.e. alternate airports).</li><li>Airports with capacity will be encouraged to absorb excess demand from nearby airports over capacity.</li></ul>	<ul style="list-style-type: none"><li>Kenmore Air Harbor Inc. will continue to serve community.</li><li>As privately owned public-facility seaplane base primarily serves Kenmore Air.</li><li>Kenmore Air may limit public based aircraft to reduce operations activity.</li><li>As service level declines and operating costs increase, public activity may shift to the closest seaplane facilities with available capacity.</li><li>Local communities receiving displaced activity may have adverse reaction to operations</li></ul>	<ul style="list-style-type: none"><li>Limits to range of efficiency improvements available – must assume airport is already operating efficiently. High costs for minimal gains?</li><li>Demand still expected to exceed capacity until delays, limitations or increased operating costs force operators to seek alternate airports.</li><li>Operations shortfall can be accommodated at Kenmore Air Harbor SPB/Lake Union and Will Rogers/Wiley Post as closest alternate facilities with capacity to absorb excess operations without expansion.</li></ul>

<ul style="list-style-type: none"><li>• Alternate system airports with the capability to expand to increase capacity will do so.</li><li>• State will identify and encourage demand management strategies for airport (local) measures, regional measures, state measures and Federal actions.</li></ul>	<p>growth.</p> <ul style="list-style-type: none"><li>• Potential community opposition to increased activity at the seaplane base.</li><li>• Increasing conflicts with other water-borne recreational activity – particularly during summer months.</li><li>• Potential to increase capacity unknown.</li></ul>	<ul style="list-style-type: none"><li>• Kenmore Air Harbor SPB/Lake Union can not provide public seaplane basing facilities.</li></ul>
<b>Strategy Three: Expand The Airport Experiencing Capacity Constraints</b>		
<ul style="list-style-type: none"><li>• State will work to promote increased capacity through expansion of those airports that are capacity constrained.</li></ul>	<ul style="list-style-type: none"><li>• Explore potential for expanding operations through re-designation of landing lanes.</li><li>• Redistribute increased activity to Kenmore Air Harbor SPB/Lake Union and Will Rogers/Wiley Post.</li></ul>	<ul style="list-style-type: none"><li>• Potential to increase capacity unknown.</li><li>• Wiley Post absorbs both excess operations and based aircraft without expansion.</li></ul>
<b>Strategy Four: Develop New Airport</b>		
<ul style="list-style-type: none"><li>• State will work to promote development of new airport(s).</li><li>• New facilities sized to meet demand through 2080 (50-year time frame)</li></ul>	<ul style="list-style-type: none"><li>• Expect 20-year time lag time to plan and develop a new seaplane base.</li><li>• Seaplane operations demand can be accommodated by existing seaplane bases – no new facilities required.</li><li>• Expect extensive public opposition.</li><li>• Questionable whether the “political will” can be sustained over time period required.</li></ul>	<ul style="list-style-type: none"><li>• Operations demand met once new airport(s) open in 2025 to 2030.</li><li>• Significant delay to bringing any new capacity on-line – questionable whether this can be accomplished by 2030.</li><li>• 2030 operations shortfalls can be accommodated at existing alternate facilities.</li></ul>

## **Airports with Passenger Capacity Constraints**

Six Washington airports were identified as experiencing shortfalls in passenger terminal capacity by 2030. The six airports include:

- Anacortes
- Kenmore Air Harbor, Inc.
- Kenmore Air Harbor SPB
- Orcas Island
- Seattle-Tacoma International
- Tri-Cities

The terminal area requirements for each airport were presented in Figure 9 earlier in this report. In Figure 25 on the following page, alternative scenarios for addressing passenger terminal capacity shortfalls are discussed, along with the implications relative to the Washington aviation system.

**Figure 25: Airports with Passenger Capacity Constraints**

Strategy and Assumptions		Expected/Anticipated System Response	Implications on System and Capacity
Strategy One: No Action			
<ul style="list-style-type: none"><li>State will not attempt to influence or manage demand.</li><li>The market place will operate freely and determine outcomes.</li><li>System capacity will change as a result of individual airport and local community decisions and actions.</li></ul>	<ul style="list-style-type: none"><li>Facilities will expand as demand exceeds service level.</li><li>Decision to expand dependent on local airport/community and its capabilities.</li></ul>	<ul style="list-style-type: none"><li>Service levels may decline if demand not met.</li><li>Facilities and service level may lag behind the demand.</li><li>Passenger facility impacts if over-capacity:<ul style="list-style-type: none"><li>Passenger comfort and convenience</li><li>Schedule predictability and delays</li><li>Baggage processing</li><li>Operating and maintenance costs.</li></ul></li><li>System-wide impacts if over-capacity (off-airport):<ul style="list-style-type: none"><li>Roadway congestion and travel times</li><li>Increased vehicle emissions</li><li>Increased costs</li></ul></li><li>Overall long-term system impacts are limited once capacity increased.</li></ul>	
Strategy Two: Manage Existing System Facilities and/or Demand			
<ul style="list-style-type: none"><li>State will work to influence or manage demand.</li><li>State will promote use of existing system-wide resources to address capacity short-falls (i.e. alternate airports).</li><li>Airports with capacity will be encouraged to absorb excess demand from nearby airports over capacity.</li><li>Alternate system airports with the capability to expand to increase capacity will do so.</li><li>State will identify and encourage demand management strategies for airport (local) measures, regional measures, state measures and Federal actions.</li></ul>	<ul style="list-style-type: none"><li>Facilities expanded as demand exceeds service level.</li><li>Decision to expand dependent on local community and its capabilities.</li><li>SEA: Demand for passenger facilities may be reduced if aircraft operations shift to new airport (Paine Field).</li><li>Expect community opposition to scheduled air service at Paine Field.</li></ul>	<ul style="list-style-type: none"><li>Facilities and service level may lag behind the demand.</li><li>Service levels may decline if demand not met.</li><li>Passenger facility impacts if over-capacity:<ul style="list-style-type: none"><li>Passenger comfort and convenience</li><li>Schedule predictability and delays</li><li>Efficient passenger flows</li><li>Baggage processing</li><li>Operating and maintenance costs.</li></ul></li><li>System-wide impacts if over-capacity (off-airport):<ul style="list-style-type: none"><li>Roadway congestion and travel times</li><li>Increased vehicle emissions</li><li>Increased costs</li><li>Regional economic impacts</li><li>Reduced productivity</li></ul></li><li>Overall long-term system impacts are limited once capacity increased.</li></ul>	
Strategy Three: Expand Facilities of Those Airports with Capacity Constraints			
<ul style="list-style-type: none"><li>State will work to promote increased capacity through expansion of those airports that are capacity constrained.</li></ul>	<ul style="list-style-type: none"><li>Facilities expanded as demand exceeds service level.</li><li>Decision to expand dependent on local community and its capabilities.</li></ul>	<ul style="list-style-type: none"><li>Facilities and service level may lag behind the demand.</li><li>SEA: Passenger demand may not reach projections if operations are constrained or relocated.</li><li>Overall long-term system impacts are limited once capacity increased.</li></ul>	

Strategy Four: Develop New Airport		
<ul style="list-style-type: none"><li>• State will work to promote development of new airport(s).</li><li>• New facilities sized to meet demand through 2080 (50-year time frame)</li></ul>	<ul style="list-style-type: none"><li>• SEA: Demand for facilities may be reduced if operations shift to new airport.</li><li>• Facilities sized according to projected demand.</li><li>• Decision to expand dependent on local community and its capabilities.</li><li>• Existing airports will still need to be expanded in the interim period before new facilities come online.</li></ul>	<ul style="list-style-type: none"><li>• Passenger facility demand will be met after 2025 or beyond.</li></ul>

## Airports with Cargo Capacity Constraints

Cargo capacity at Washington airports was determined to be driven primarily by the availability of aircraft apron for use by cargo aircraft. As already discussed above, LATS Phase II did not identify any airports exceeding their cargo capacity by 2030. The study did note that, by 2030, Seattle-Tacoma International Airport and Boeing Field/King County International were projected to have cargo activity levels at or above the 60 percent threshold, the point at which planning for additional capacity should be initiated. However, no specific shortfalls in capacity were identified through the end of the planning period.

Although no specific need to increase system cargo capacity has been identified, an evaluation matrix for alternative responses to such a need was still prepared and is provided in Figure 26 on the following page.

Figure 26: Airports with Cargo Capacity Constraints

Strategy and Assumptions		Expected/Anticipated System Response	Implications on System and Capacity
Strategy One: No Action			
<ul style="list-style-type: none"><li>State will not attempt to influence or manage demand.</li><li>The market place will operate freely and determine outcomes.</li><li>System capacity will change as a result of individual airport and local community decisions and actions.</li></ul>	<ul style="list-style-type: none"><li>Airport facilities expand in response to market demands.</li><li>Airports prioritize accommodating airside cargo operations as demand reaches capacity.</li><li>Airports provide apron and/or airside access for off-airport operators.</li><li>Off-airport facilities developed by private sector as airports reach maximum capacity.</li></ul>	<ul style="list-style-type: none"><li>Possible reduced revenues due to off-airport facilities.</li><li>Overall long-term adverse system impacts are minimal.</li></ul>	
Strategy Two: Manage Existing System Facilities and/or Demand			
<ul style="list-style-type: none"><li>State will work to influence or manage demand.</li><li>State will promote use of existing system-wide resources to address capacity short-falls (i.e. alternate airports).</li><li>Airports with capacity will be encouraged to absorb excess demand from nearby airports over capacity.</li><li>Alternate system airports with the capability to expand to increase capacity will do so.</li><li>State will identify and encourage demand management strategies for airport (local) measures, regional measures, state measures and Federal actions.</li></ul>	<ul style="list-style-type: none"><li>Airport facilities expand in response to market demands.</li><li>Airports prioritize accommodating airside cargo operations.</li><li>Airports provide apron and/or airside access for off-airport operators.</li><li>Off-airport facilities developed by private sector as airports reach maximum capacity.</li></ul>	<ul style="list-style-type: none"><li>Possible reduced revenues due to off-airport facilities.</li><li>Overall long-term adverse system impacts are minimal.</li></ul>	
Strategy Three: Expand Facilities of Those Airports with Capacity Constraints			
<ul style="list-style-type: none"><li>State will work to promote increased capacity through expansion of those airports that are capacity constrained.</li></ul>	<ul style="list-style-type: none"><li>On-airport facilities expanded as market demands.</li><li>Airports provide apron and/or airside access for off-airport operators.</li><li>Off-airport facilities developed by private sector as airports reach maximum capacity.</li></ul>	<ul style="list-style-type: none"><li>Possible reduced revenues due to off-airport facilities.</li><li>Overall long-term adverse system impacts are minimal.</li></ul>	
Strategy Four: Develop New Airport			
<ul style="list-style-type: none"><li>State will work to promote development of new airport(s).</li><li>New facilities sized to meet demand through 2080 (50-year time frame)</li></ul>	<ul style="list-style-type: none"><li>New/additional air cargo capacity created sized to meet anticipated demand.</li><li>Distribution of on-airport versus off-airport cargo capacity needs to be determined.</li><li>Existing airports will still need to be expanded in the interim period before new facilities come online.</li></ul>	<ul style="list-style-type: none"><li>Air cargo demand will be met.</li></ul>	

## **Airports with Aircraft Parking and Storage Capacity Constraints**

The Phase II analysis identified 40 airports throughout Washington State with an expected shortfall in aircraft parking and storage capacity by 2030 (see Figure 12). Given that the analysis assumed that airports would expand to their maximum potential basing capacity using their inventory of developed and potentially developable land, the list of impacted airports may be conservative. However, the demand experienced at each airport is dependent on both the 2030 demand forecast, as well as the forecast allocation occurring as predicted. Furthermore, adjustments to the allocation of based aircraft may need to be developed for those airports located in proximity to airports expected to exceed their operations capacity. As aircraft operations are redistributed from over-capacity airports to facilities with reserve capacity available, it may be assumed that certain numbers of based aircraft will accompany that operations demand. Some airports such as Renton Municipal and Auburn, while having reserve operations capacity in 2030, are not expected to meet their own aircraft parking and storage needs let alone absorb aircraft displaced from other airports.

In Figure 27 on the following page, the alternatives matrix is applied to potential responses to future system aircraft parking and storage needs.

**Figure 27: Airports with Aircraft Parking and Storage Capacity Constraints**

Strategy and Assumptions		Expected/Anticipated System Response	Implications on System and Capacity
Strategy One: No Action			
<ul style="list-style-type: none"><li>State will not attempt to influence or manage demand.</li><li>The market place will operate freely and determine outcomes.</li><li>System capacity will change as a result of individual airport and local community decisions and actions.</li></ul>	<ul style="list-style-type: none"><li>Airports with available land resources will increase parking and storage if economically viable and supported locally.</li><li>Private sector will participate in facility development if economically viable.</li><li>Pricing structure will reflect supply and demand.</li><li>Price sensitive users shift to less expensive alternatives as prices increase.</li></ul>	<ul style="list-style-type: none"><li>Distribution of available supply may not correlate with the distribution of demand.</li><li>Meeting demand dependent on individual local conditions and circumstances.</li><li>Alternative airports may or may not provide equivalent services or facilities.</li></ul>	
Strategy Two: Manage Existing System Facilities and/or Demand			
<ul style="list-style-type: none"><li>State will work to influence or manage demand.</li><li>State will promote use of existing system-wide resources to address capacity short-falls (i.e. alternate airports).</li><li>Airports with capacity will be encouraged to absorb excess demand from nearby airports over capacity.</li><li>Alternate system airports with the capability to expand to increase capacity will do so.</li><li>State will identify and encourage demand management strategies for airport (local) measures, regional measures, state measures and Federal actions.</li></ul>	<ul style="list-style-type: none"><li>Airports with available land resources will increase parking and storage if economically viable and supported locally.</li><li>Airport may acquire adjacent land, if available, to expand into.</li><li>Availability, cost, location and desired facilities and services will affect user’s basing decisions.</li><li>Private sector will participate in facility development if economically viable.</li><li>Pricing structure will reflect supply and demand.</li><li>Price sensitive users shift to less expensive alternatives as prices increase.</li></ul>	<ul style="list-style-type: none"><li>Distribution of available supply may not correlate with the distribution of demand.</li><li>Meeting demand dependent on individual local conditions and circumstances.</li><li>Alternative airports may or may not provide equivalent services or facilities.</li></ul>	
Strategy Three: Expand Facilities of Those Airports with Capacity Constraints			
<ul style="list-style-type: none"><li>State will work to promote increased capacity through expansion of those airports that are capacity constrained.</li></ul>	<ul style="list-style-type: none"><li>Airports will expand if land available and economically viable.</li><li>Private sector will participate in facility development if economically viable.</li><li>Pricing structure will reflect supply and demand.</li><li>Price sensitive users shift to less expensive alternatives as prices increase.</li><li>Additional land acquisition may be required – if available and feasible.</li></ul>	<ul style="list-style-type: none"><li>Distribution of available supply may not correlate with the distribution of demand.</li><li>Meeting demand dependent on individual local conditions and circumstances.</li><li>Alternative airports may or may not provide equivalent services or facilities.</li></ul>	
Strategy Four: Develop New Airport			
<ul style="list-style-type: none"><li>State will work to promote development of new airport(s).</li><li>New facilities sized to meet demand through 2080 (50-year time frame)</li></ul>	<ul style="list-style-type: none"><li>New GA facility sized to meet anticipated demand.</li><li>New facility(ies) sited relative to location of demand.</li><li>Existing airports will still need to be expanded in the interim period before new facilities come online.</li></ul>	<ul style="list-style-type: none"><li>Aircraft parking and storage requirements will be met.</li></ul>	

## Airports with Performance Objective Constraints

Airports constrained from meeting their performance objectives are numerous and are distributed across the state. They have not been identified individually as the capacity-constrained airports have. Nevertheless, the four alternative scenarios associated with bringing airports up to airport classification performance objectives have been analyzed and are presented in Figure 28.

**Figure 28: Airports with Performance Constraints**

Strategy and Assumptions	Expected/Anticipated System Response	Implications on System
<b>Strategy One: No Action</b>		
<ul style="list-style-type: none"> <li>State airport grants will continue to focus on matching FAA grants and preserving the existing airport system, primarily through grants for airfield pavement projects.</li> <li>The market place will operate freely.</li> <li>System performance for NPIAS airports will change as a result of FAA grant funds.</li> <li>System performance will change as a result of individual airport and local community decisions and actions.</li> </ul>	<ul style="list-style-type: none"> <li>Airports will improve to meet performance objectives that are aligned with their owners' objectives.</li> <li>Airports in the NPIAS will improve to meet FAA priorities, which in many cases are aligned with performance objectives. However, FAA funds may be focused on the airports with the most based aircraft.</li> </ul>	<ul style="list-style-type: none"> <li>Meeting objectives will depend on individual local conditions and circumstances.</li> <li>Alternative airports may or may not provide equivalent services or facilities.</li> <li>System imbalances likely to continue or worsen.</li> <li>More airport closures are likely with the widening gap between needs and funds.</li> </ul>
<b>Strategy Two: Manage Existing System Facilities</b>		
<ul style="list-style-type: none"> <li>State will align its grant funding priorities with performance objectives.</li> <li>Alternate system airports with the capability to meet performance objectives may do so.</li> </ul>	<ul style="list-style-type: none"> <li>Airports are more likely to improve to meet performance objectives than in Strategy One.</li> <li>Airports will improve to meet performance objectives that are aligned with their owners' objectives and FAA funding priorities.</li> <li>Clear expression of state priorities likely to encourage and focus private investment in airports.</li> </ul>	<ul style="list-style-type: none"> <li>System imbalances likely to improve.</li> <li>Some changes in airport classifications may result from individual airport sponsor's not wanting to expand to meet performance objectives or wanting to exceed performance objectives.</li> </ul>
<b>Strategy Three: Expand Constrained Facilities</b>		
<ul style="list-style-type: none"> <li>State will align its grant funding priorities with performance objectives.</li> <li>State will also employ more aggressive tactics, possibly including: change the state classifications of airports to improve performance objective compliance; encourage the FAA to make NPIAS additions and deletions that focus funding on the airports most willing and capable to meet their objectives; change legislation to allow privately owned airports to receive grant funds; encourage the transfer of private airport ownership to public entities; encourage transfer to a multi-jurisdictional sponsor or even take on ownership of the airport if an airport sponsor shows unwillingness or extreme difficulty in meeting performance objectives.</li> <li>Alternate system airports with the capability to meet performance objectives may do so without State incentives.</li> </ul>	<ul style="list-style-type: none"> <li>Airports more likely to improve to meet performance objectives than in Strategy Two.</li> <li>Airports will improve to meet performance objectives that are aligned with their owners' objectives and FAA funding priorities.</li> <li>Clear expression of state priorities likely to encourage and focus private investment in airports.</li> </ul>	<ul style="list-style-type: none"> <li>System imbalances likely to improve more than with Strategy Two.</li> <li>Some changes in airport classifications may result from individual airport sponsor's not wanting to expand to meet performance objectives or wanting to exceed performance objectives.</li> </ul>
<b>Strategy Four: Develop New Airport</b>		
<ul style="list-style-type: none"> <li>In addition to the tactics in Strategy Three, the State will work to promote development of new airport(s).</li> <li>Alternate system airports with the capability to meet performance objectives may do so without State incentives.</li> </ul>	<ul style="list-style-type: none"> <li>Unless also needed to meet demand, new airport(s) may cause other existing airports to be no longer viable or to change classification.</li> <li>Airport users may be reluctant to use new airport(s) if more costly or less convenient than existing airport.</li> <li>Clear expression of state priorities likely to encourage and focus private investment in airports.</li> <li>Airports are more likely to improve to meet performance objectives than in Strategy One.</li> </ul>	<ul style="list-style-type: none"> <li>Best strategy to eliminate the worst performance problems, but may have less statewide benefit due to the focusing of funding on new airport(s). Incremental improvement of existing airports may worsen.</li> <li>Some changes in airport classifications may result from individual airport sponsor's not wanting to expand to meet performance objectives or wanting to exceed performance objectives</li> </ul>

## Financial Considerations

Each of the potential responses to future capacity constraints, as investigated under the alternative strategies above, may require actions at the State, regional, local and airport levels. While some actions may fall within the existing powers and authority of the responsible agencies and organizations, new powers may need to be granted to pursue other actions, expanded roles or increased responsibilities. Increasing or expanding roles and responsibilities will also have their own financial impacts – which in turn have implications on funding. A more complete assessment of the financial implications will depend on the alternative or strategies selected for implementation.

In order to understand and evaluate alternatives for addressing future State system capacity constraints, it is also necessary to understand the requirements and feasibility of the enabling actions needed to empower the various agencies and organizations to carry out their respective responsibilities. A summary of the existing authority and programs of WSDOT/Aviation was presented earlier in this chapter. Provided below is a general breakdown of the sources of funds for WSDOT/Aviation programs.

- State aviation fuel tax (RCW 82.42)
  - 11 cents per gallon fuel tax, which applies to general aviation aircraft, with exceptions as provided by law (aircraft exemptions include aircraft for government, military, commercial manufacturing, air carriers, testing, and agriculture)
  - Expected revenue for 2006–07 Biennium: \$9.291 million
- Motor fuel tax transfer (RCW 82.36.415)
  - 0.028% of the gross motor fuel tax (less sales tax)
  - Compensation for unclaimed motor vehicle fuel used in aircraft

- Aircraft registration fee (RCW 47.68.250)
  - \$15 paid annually by owners of aircraft operating in Washington State
- Aircraft excise tax (RCW 82.48.)
  - Annual rate levied on a sliding scale of \$35–\$140 per aircraft depending on the type and size of the aircraft
  - 10% of funds go to the Aviation Division to defray costs of registration and collection
  - 90% of the funds are deposited in the General Fund
- Grants
  - Federal Aviation Administration (FAA)
  - All grants require matching: 95% federal and 5% state/local, up to \$250,000.
  - FAA grants fund the following:
    - Numerous State Aviation System Plan projects
    - State's Pavement Management Program
    - Airport master planning
    - Airport Improvement Projects

## **Regional Agencies and Local Jurisdictions**

The financial impact of strategy implementation on regional agencies and local jurisdictions is not expected to be significant as the responsibilities that they carry and functions that they perform are not expected to change. For example, while the language relative to airports contained in their plans and ordinances may change, their responsibility for planning and implementation of those plans would likely remain essentially the same.

## Airport Sponsors

Airports included in the State's aviation system consist of those that are Publicly Owned/Public Use facilities and Privately Owned/Public Use airports. Publicly owned facilities may enjoy certain advantages over privately owned facilities relative to the availability of public finance for funding and improvements. However, public funding also carries long-term obligations and can reduce flexibility in management and operation of the facility.

The availability of funding to develop, maintain and operate the airport is a critical factor in meeting future demand. Funding sources for airports include but are not necessarily limited to the following:

- Federal grants for those airports eligible for funding, able to provide matching funds to meet federal requirements.
- State funding through WSDOT/Aviation for matching federal grants and for other projects and improvements eligible under state guidelines.
- Operating revenues from leases, hangar rentals, tiedowns, fuel flowage fees, commercial leases, concessions, etc.
- Major airports (e.g., Seattle-Tacoma and Spokane International) impose landing fees on airlines to cover operations and finance capital improvements made with revenue bonds. In addition, passenger facility charges are assessed at most major airports for capital improvement projects.
- Some ports, counties, and cities appropriate local general tax revenues to support their airport facilities.
- Bonds and other local contributions.
- Development using private investment.

# APPENDIX A: AVIATION PLANNING COUNCIL AVIATION POLICIES

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## **Draft Statewide Aviation Policies** *As of October 2008*

Aviation Planning Council policy recommendations as of October, 2008 are provided below. Policy guidance is provided regarding the State's role in ensuring the capability of the aviation system to meet future operations demand. Regarding system capacity, if demand is anticipated to exceed capacity recommendations are made as to additional actions that may be needed to maintain and/or expand the system.

### **Capacity**

- The State of Washington must take a lead role in addressing its long-term aviation system capacity needs from a system-wide and regional perspective.
- The statewide airport classification system will guide decisions on future aviation system needs and investments.
- Washington State shall place a funding and planning priority on maximizing the efficiency and utility of the existing aviation system before creating new airports.
- If Washington State's existing system cannot provide sufficient aviation capacity to meet existing and future demand and no sponsor has expressed interest, the state will be given the authority to undertake a site selection process for a new airport.

## Land Use

- Washington State should strengthen legislation prohibiting incompatible land uses and promoting appropriate land uses adjacent to public use airports.
- Washington State should use a combination of incentives, legislation and regulatory tools to ensure that local governments address land use requirements to protect airports as essential public facilities, discouraging the encroachment of incompatible land uses adjacent to public use airports.
- Washington State should develop performance measures to assess how well local governments and local comprehensive plans and policies discourage incompatible development adjacent to public use airport.
- The State should prohibit airspace intrusion around airports and runway approach paths by structural, visual, or wildlife hazards that could potentially impact airport operations or endanger the safety and welfare of aviation users.
- Regional Transportation Planning Organizations should be given the authority to certify the transportation and land use element of local comprehensive plans discouraging incompatible development adjacent to public use airports and ensuring consistency of comprehensive plan components and regulations across jurisdictional boundaries
- Washington State should develop standards discouraging new development of K-12 public schools, daycare centers and medical facilities from locating adjacent to public use airports.
- Environment
  - Washington State should require airports to appropriately mitigate adverse environmental impacts to threatened and endangered species and habitats occurring at airports, while reducing wildlife attractants that create hazards to airport operations.
  - Airport facilities and operations plans should use best management practices e.g. energy conservation, alternative fuels, and waste reduction.

- Incorporate state and federal greenhouse gas reductions associated with air transportation to minimize the adverse health and environmental impacts on air quality and the climate while promoting jobs and economic development in a sustainable manner.
- Develop statewide and regional strategies to coordinate, develop and provide a range of transportation mode options for access to public use airports through airport and highway design projects.
- Safety
- Washington State should use incentives, including state and federal resources to ensure that airport facilities meet applicable federal or state design criteria and safety standards.
- The Washington State Aviation System Plan should identify strategic aviation facilities to support the Washington Comprehensive Emergency Management Plan.
- Washington State should encourage and support precision instrument approach procedures at all airports with a classification service role of “regional airport” or higher, and non-precision instrument approach procedures at all airports with a service role of “community airport” or higher.
- Washington State should support safe access to airports with weather reporting and other instrument approach facilities.

## **Stewardship**

- Update the Washington Aviation System Plan (WASP) to include the following:
  - a. Incorporate economic development studies, aviation forecasts, pavement conditions analysis, capacity analysis, airport facility assessment studies and other studies as appropriate to keep the system plan up-to-date to meet changing conditions in the air transportation system.
  - b. At each update cycle, reevaluate Airport Classification System designations for airports to respond to changing conditions and

ensure that airport facilities are meeting established performance standards.

c. Maintain a relational database, including physical and operational airport inventory information to support Aviation System Planning and the statewide aviation capital investment program.

- Washington State should ensure that the aviation capital investment program strategically prioritizes system investments necessary to provide for the state's air transportation system needs in a cost-effective manner.
- Provide technical assistance to airports and promote methods that optimize the net public benefit, as consistent with the WASP, airport master plans, and state and federal assurances and guidelines.
- Support joint public-private partnership and private sector initiatives to provide transportation facilities and services that protects the public's best interest, such that:
  - Public expenditures can be reduced
  - Access to aviation facilities is enhanced
  - The quality, quantity and long term stability of service is maintained and/or
  - Environmental impacts are reduced.
- Where there is a demonstrated need for aviation services, facilities or technology (such as emergency services, economically distressed communities, or within regions where there are air capacity shortfalls), Washington State may provide facilities by encouraging public/private partnerships or actions including developing, owning and/or operating airports.
- The regional transportation planning process should be coordinated with the aviation system plan and local airport master plans to maximize the net public benefit.
- It is in the state's interest to implement airport grant terms and conditions that will preserve and protect the State's investments in the system.

- The WASP should encourage efficient airspace by actions including working with the FAA and investing in facilities and technologies.
- Washington State should work with the FAA and regional transportation planning organizations to identify additional airports that can meet federal criteria for classification as reliever airports between 2008 and 2035.

## **Economy**

- Washington State could consider state and/or regional outcomes in the analyses of aviation investments and policy recommendations.
- Economy policies 2 and 5 are redundant. Recommend delete Policy 2 and keeping subcommittee's recommended wording for Policy 5.
- Washington State should encourage and support education infrastructure to train and education the skilled workforce necessary to support aviation.
- Washington State should work with state and local economic development agencies to support adequate aviation capacity, service and facilities to support economic growth.

## **Mobility**

- Washington's aviation facilities should be planned, developed and operated as an integrated system that meets statewide air transportation demand; complements the overall state transportation system; maximizes the use of existing facilities; and is compatible with the environment.
- Promote adequate access to the national air transportation system for all Washington residents, using adopted standards of the State Airport Classification System.
- Washington State should identify transportation needs that extend into adjacent states and promote bi-state/multi modal cooperative

solutions to ensure coordinated services and maximum cost effectiveness.

- Washington State should coordinate with federal, state, regional and local transportation agencies to improve ground access to airports through various modes of transportation, freight/cargo efficiencies and rail and road enhancement projects.

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## **APPENDIX B: STAKEHOLDER ROLES**

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### **Federal Aviation Administration (FAA)**

The FAA represents the Federal government's role in the regulating, managing, planning, maintaining and funding, the national air transportation system. It supports airports listed in the National Plan of Integrated Airport Systems (NPIAS) and conducts research necessary to develop tools and methods that advance the safety and efficiency of the national air transportation system. In this capacity, the FAA carries a wide range of responsibilities including:

- Listing airports in the National Plan of Integrated Airport Systems (NPIAS).
- Provide airport planning and design guidance.
- Aeronautical safety and compliance.
- Allocate and disburse Federal funds.
- Assure environmental compliance.
- Conduct research on issues relevant to aviation and safety.
- Manage and maintain the national air transportation system.

### **WSDOT/Aviation Division**

Discussion of the role of Washington State is limited to WSDOT/Aviation. The Aviation Division of the Washington Department of Transportation is the State's counterpart to the FAA. The Washington State Department of Transportation's (WSDOT) Aviation Division is charged with helping to maintain and enhance the State of Washington's air transportation system. Public use airports in the system range in size from small, general aviation facilities to large hub commercial service airports. Specifically, as detailed in the General Powers element of the State of Washington's RCW 47.68.070:

*The department has general supervision over aeronautics within this **state**. It is empowered and directed to encourage, foster, and assist in the development of aeronautics in this state and to encourage the establishment of airports and air navigation facilities. It shall cooperate with and assist the federal government, the municipalities of this state, and other persons in the development of aeronautics, and shall seek to coordinate the aeronautical activities of these bodies and persons.*

WSDOT Aviation Division provides vital financial assistance to public-use airports across the State of Washington in the form of airport development and maintenance grants. The agency is also responsible for the management of air search and rescue operations, the management of state managed airports, and providing technical assistance and training in relation to the value and protection of public use airports. This also includes the promotion of the aviation industry within the State. As such, WSDOT Aviation plays a key role in the operation and development of the State's system of airports.

In addition to its responsibilities, the Division carries out a variety of additional functions and services in support of the state aviation system as follows:

- Construct and maintain facilities for 17 state-operated airports.
- Provide technical assistance to airports, cities, and counties.
- Conduct search and rescue operations.
- Prepare and maintain Washington Aviation System Plan.
- Conduct Height Hazard Obstruction reviews.
- Conduct special studies, including:
  - Pavement Conditions Assessment 2005 (3-year cycle)
  - Economic Benefits Analysis of Airports in Washington State 2001
  - Rural Airport Study 2002
  - Airport Conditions Assessment, 2006, Phase I LATS

- Administer the Grant Assistance Program.
- Administer Airport Land Use Compatibility Program and provide technical assistance in accordance with RCW 36.70.547 and 36.70A.510.

## **Regional Agencies**

There are 14 Regional planning organizations (RTPOs, RPCs, RTCs and COGs) in Washington State. These planning organizations fulfill a variety of roles relative to the Washington State Multimodal Transportation system. According to RCW 47.80 regional transportation planning organizations are responsible for coordinating and facilitating the regional transportation facilities together with local comprehensive plans throughout the state. Some of their primary functions include the following:

- Inter-governmental coordination
- Integration of local comprehensive plans and regional goals with state and local transportation programs.
- Certification of the transportation element of local comprehensive plan
- Compatibility planning between land use and transportation
- Development of regional transportation plans that address alternative transportation modes, as well as transportation demand management policies and implementation measures.
- Development of transportation investment strategies for the region that will enhance local and state objectives for effective comprehensive planning, economic development strategies, and clean air policies.

## **Local Jurisdictions**

Local jurisdictions are the cities and counties within which the airports are located. These jurisdictions, as well as Port Districts, Airport Authorities and other recognized local agencies are authorized to own and operate airports under RCW 14.08. Local jurisdictions may also have a variety of additional interests in or responsibilities to airports within their boundaries including:

- Comprehensive Planning including application of statewide planning goals
- Land Use Zoning
- Transportation Planning
- Utilities and Infrastructure
- Public Safety
- Coordination with Special Districts
- Economic Development
- Taxation and Licensing

## **Airport Sponsors**

Airports included in the State's aviation system include those that are Publicly Owned/Public Use facilities and Privately Owned/Public Use airports. Publicly owned facilities may enjoy certain advantages over privately owned facilities relative to the potential availability of public finance or federal/state grants for funding improvements. However, public funding can also carry long-term obligations and/or grant assurances which may reduce flexibility or place conditions on the management and operation of the facility.

General responsibilities and obligations of the airport sponsor include:

- Compliance with FAA safety, development and operating requirements.
- Meet FAA or state grant assurances as applicable.
- Comply with local, regional, state and federal planning and environmental requirements.
- Promote airport compatibility with community.
- Manage day-to-day airport operations and maintenance.
- Manage airport finances and requests for state and/or federal funding.
- Respond to market demands and conditions – particularly aviation oriented needs.
- Provide for/respond to economic development opportunities.